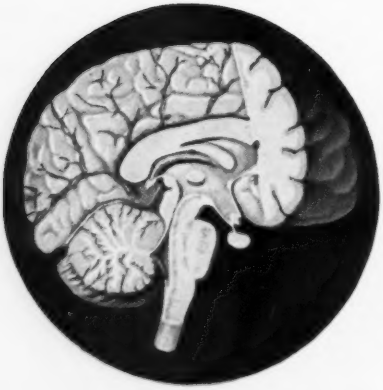
Clinical Medicine

Original Articles for November, 1957



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Clinical Medicine

Vol. IV, No. 11

CONTENTS FOR NOVEMBER, 1957

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Original Articles

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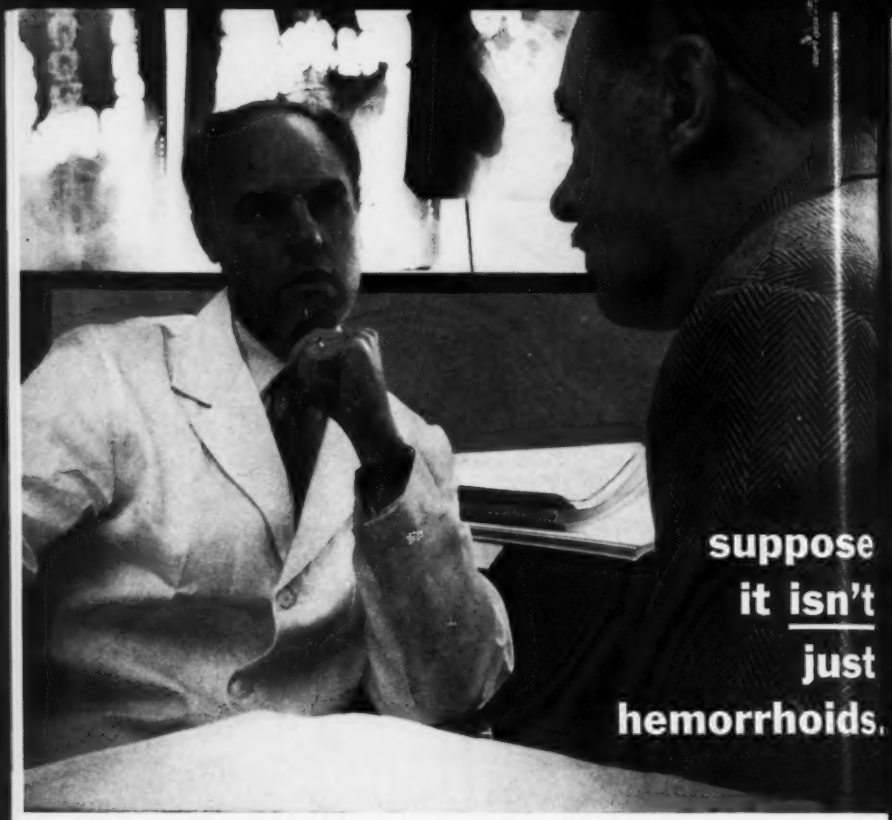

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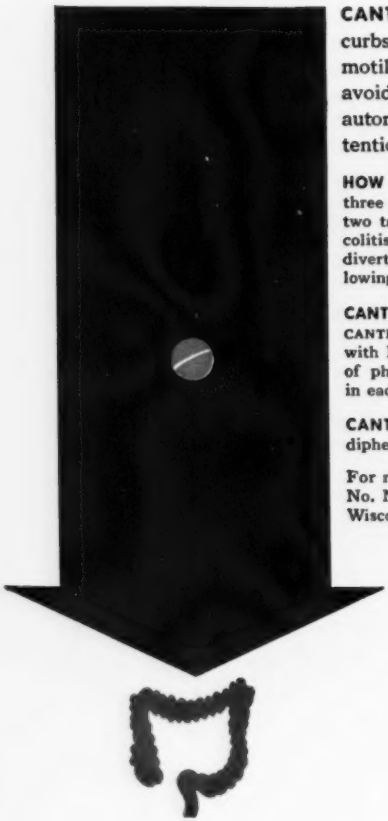

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EDITORIAL

Facial Pain: Its Differential Diagnosis and Treatment

Descriptions of the various types of facial neuralgias and methods that may help to identify and to control them

JAMES M. NORTHINGTON, M.D., *Editor*

Facial pain not amenable to ordinary means of treatment within a few weeks of time is one of the bugbears of medical practice. Perese[1] provides the following helpful information.

Identification of each type of facial pain can be achieved with consistent success by employing the following routine: A history that searches out details of the appearance of the pain, its quality, duration, radiation, relationship to trauma, etc.; a routine examination of the hard and soft tissues of the face in addition to a general physical examination, and a complete neurologic examination of the face.

Inflammation is a common cause of dental pain. It is difficult to recognize the pain of pulpitis in the early stage when the pain is poorly localized, and may be non-throbbing. Examination of the gums and teeth may be entirely negative. Differentiation from trigeminal neuralgia becomes complicated when the pain is shooting and paroxysmal. Spraying the gums with cold water from a syringe will reduce the pain of pulpitis, but in almost every instance this procedure will precipitate a major attack of trigeminal neuralgia.

Occasionally a fracture involving the base of the skull may cause pain

1. Perese, D. M., *New York J. Med.*, 57:2807-2814, 1957.

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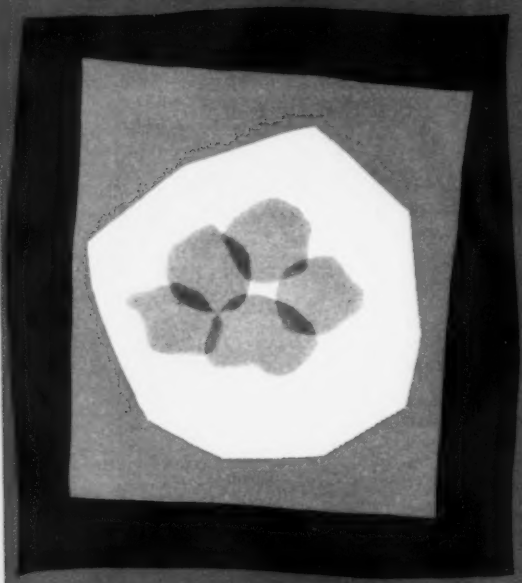

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or numbness along the distribution of the involved fifth nerve of the face. Prosthetic appliances usually cause pain locally. X-rays are helpful in discovering an abnormality. A small amount of procaine injected into the temporo-mandibular joint may give sudden relief, thus establishing the diagnosis.

Tumors of the sinuses may cause pain radiating along the branches of the fifth and ninth nerves. Tumor growth may cause numbness along the tip of the tongue or a part of the cheek. Bone tumors cause pain by stretching the pain-sensitive periosteum. Tumors of the meninges or ganglions of the cranial nerves may produce facial pain, constant or paroxysmal. A patient may complain of pain at the angle of the jaw and near the ear, due to irritation of the second or third sensory division of the cervical nerves, by direct pressure of primary or metastatic tumors. Only the fifth and ninth nerve neuralgias are listed as typical.

A knowledge of detailed nerve supply is necessary. The fifth, seventh, ninth and tenth nerves are very closely situated within the medulla. Most patients with neuralgia of the fifth nerve are more than 40 years of age. The pain is sharp, stabbing, and lasts only a few seconds. In a series of 1,000 cases, 18 different descriptions of pain were given by patients.

In neuralgia of the ninth nerve, the pain is felt in the throat, back of the tongue, or in the ear. Cocainization of the throat usually, but not always, abolishes the pain for some minutes and aids in reaching a diagnosis. This neuralgia may be associated with attacks of syncope and convulsions; in such a case, an afferent nerve coming from the carotid sinus is responsible.

All neuralgias other than those of the fifth and ninth nerves have been collected under the term of atypical neuralgias. Only sphenopalatine neuralgia, geniculate neuralgia, greater superficial petrosal neuralgia, hemifacial spasm and neuralgia, Costen's syndrome and neuralgia of herpes zoster are well-recognized entities.

Elimination of discovered irritating factors and infections, correction of occlusal anomalies, or extraction of unerupted and impacted teeth, may serve well in cases of atypical neuralgias. Extraction should not be performed in the hope of controlling typical neuralgias. Dental treatment controls various types of atypical facial pain.

Many types of facial pain will respond to aspirin and codeine, in some cases combining sedatives with analgesics. Sniffs of trichlorethylene have been used for years to control attacks of trigeminal neuralgia; it has to be inhaled frequently. When there is evidence of vitamin deficiency, the use of vitamins and iron will help.

The specific action of stilbamidine on the fifth nerve has been known for years. A neurosurgeon applied it in severe neuralgias of the face in 1953; 0.15 gm. per day in 150 cc. of 5% glucose intravenously for 14 days relieved pain in all of his patients. This action was confirmed by control of the pain of tic douloureux in 36 of 41 patients for nine months to two years. However seven patients in this series developed severe paresthesia and formication, resulting in a greater degree of discomfort than before use of the drug.◀

ORIGINAL ARTICLE

Diarrheal Disease of Infancy

The younger the baby, the more severe the reaction; a slight aggravation can make a mildly sick child severely ill in an incredibly short time

CARL N. WARE, M.D., *Shiloh, New Jersey*

The diarrheal diseases of infancy—cholera infantum, summer complaint, ileocolitis, shigellosis, infantile dysentery—during the last three decades in this country have decreased in incidence by 70 to 90%; however, these diseases are still the most frequent cause of death in infants under one year of age in many areas of the United States and in most parts of the world. Part of these deaths are due to diarrhea as a complication of other diseases. Even in areas where diarrhea is uncommon, severe cases have a high mortality rate.

Shigella infections are a frequent cause of diarrhea at all ages. These bacilli can be shown in the stools in 80% of acute diarrhea patients over one year of age. In infants under one year, the incidence of Shigella infection is high in areas with poor sanitation, low in areas having good sanitation—e.g., in southern Georgia, 60%; in New York City, 20%.

Salmonella is sometimes a cause of diarrhea in young infants. Many other organisms have been identified occasionally as the cause of infantile diarrhea. The very severe epidemic diarrhea of the newborn, the scourge of the nursery in hospitals, may be due to a virus.

DIARRHEA IN THE FIRST YEAR

Diarrhea in the first year of life does not seem to be infectious ex-

cept as noted. Age is the most important factor, and the greatest mortality occurs in the third month. Second as a cause—as to frequency and severity—is undernutrition. Contamination of food with pathogenic bacteria results in a few cases, but refrigeration and sterilization have reduced this cause to a minimum.

FEEDING ERRORS

Diets too high in calories and fat content, in protein milk powder, or in concentrated mixtures with added casein can disturb the electrolyte balance and lead to diarrhea. The most important advance in infant feeding, one which minimized digestive disturbances leading to diarrhea, was modification of milk proteins by boiling, souring or processing (evaporated or powdered milk). Diarrhea is more prevalent in artificially fed than in breast fed infants. However, the greatest decrease in the incidence and mortality from diarrhea has occurred in those parts of the country and in those groups of society where artificial feeding is more prevalent. Proper artificial feeding does not cause diarrhea, but where control of artificial feeding is poor, the incidence of diarrhea is higher than in an equivalent breast-fed group.

Pancreatic insufficiency is a rare cause of chronic diarrhea in infancy. The celiac syndrome is a chronic nutritional disturbance of late infancy and childhood. The fundamental defect appears to be in the absorption of fatty acids from the intestine.

Allergic reactions to certain foods may result in diarrhea. Dehydration may result in diarrhea, particularly if during the period of dehydration some concentrated protein food is added to the diet. This may be seen in the summer during febrile diseases, the dehydrating effect of the fever plus that of the excessive heat.

For severe diarrhea the soil is prepared by undernutrition; the seed is planted in the form of infection or irritating food; and the plant is nurtured by fever, hot weather and dehydration. Any one of these might not make a well-nourished baby very sick, but the combination is apt to produce an alarming condition.

CLASSIFICATION

Post mortem examination reveals very little. Evidences of parenteral infection may or may not be detected. The tissues may appear dry, the intestines are generally distended. The source of any hemorrhage is rarely discovered. The liver is generally loaded with fat. Frequently terminal pneumonia is found. Those cases due to bacillary dysentery show characteristic lesions in the colon and ileum. Chemical examination of muscle tissue shows as much as 40% loss of potassium.

Classifying diarrhea as benign or severe is of academic interest only, and may lull the physician into a false sense of security from which he may be awakened to discover the case he thought benign has now become moribund. There is no need for alarm if an infant having slight diarrhea continues to gain or shows no loss in weight, if it retains a good healthy color, accepts food readily and does not vomit. Many breast-fed and many artificially fed infants show frequent loose stools, of light to bright green color. This is presumably due to the colon emptying before proper colonic absorption

takes place. The stools are not so watery as to immediately soak into the diaper and leave only a stain. These cases seldom lead to dehydration.

The physician should be sure of the condition of his newborn infants when they are discharged from the hospital. He should see them shortly afterwards, or should at least get a reliable report. Twenty-four to 48 hours can produce a marked change in a young infant with diarrhea. The mother or nurse at home should be instructed to report promptly any symptoms of diarrheal disease.

SEVERE DIARRHEAS

In the more severe cases the diarrhea persists and increases. Stools mount to five, 10 or even 20 in 24 hours. They are watery, yellow to green, contain mucus and sometimes blood. In spite of good care the buttocks becomes excoriated. The child is irritable; there is gradual, or rapid, loss of weight; the skin loses its rosy color and become pale and ashen. If the skin is picked up in a fold, it returns more slowly to its normal contour. The cheeks appear drawn, the eyes sunken and surrounded by dark circles. The fontanel may be depressed. The abdomen is usually flat. The muscles lose tone. Intestinal patterns may be seen. Intestinal distension following this picture is a bad prognostic sign. The irritable child now becomes apathetic and seldom more than a whining is heard. Coma and convulsions may follow. Vomiting and refusal of food is generally part of the picture. The urine is concentrated and scanty, and may contain albumin, leucocytes and granular casts. Breathing is rapid and deep, as in acidosis. The vomitus and stools frequently contain blood, which may be a result of a reduction of the prothrombin level. Circulatory collapse, as evidenced by a weak, rapid pulse, heart sounds, and cyanosis may now appear, and bronchopneumonia is a frequent terminal occurrence.

TREATMENT

Mild cases may require only a short period of fasting and replacement of water and salt by offering water with salt added to one-third physiologic strength, one part NaCl KCl lactate solution added to two parts of 5% glucose in water, or one gram each of KCl, NaCl and Na_2CO_3 in a liter of 5% glucose. The latter solution should not be boiled. Food can be started with partially skimmed milk in older children, with a dilute form of the food indicated in babies.

In severe cases food is withheld until dehydration is overcome and the stools are no longer profuse and watery. As long as there is nausea nothing should be given by mouth. After replacing the initial deficit of water and electrolyte by subcutaneous or intravenous injections, solutions containing no milk may be given by mouth even while stools are still watery. In severe cases it is usually necessary to omit all oral fluids for 12 to 24 hours, but food other than glucose should be withheld even longer—48 hours to five days.

If the patient is in shock as a result of severe dehydration, some form of intravenous replacement is needed at once. This may be accomplished with physiologic saline solution, or a balanced solution of NaCl and $NaHCO_3$, Na lactate, such as Hartmann's lactate-Ringer's.

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Whole blood or plasma and salt solution in equal amounts is probably more effective. Usually, 20 to 30 cc. of either blood or plasma per kilogram of body weight, plus an equal amount of salt solution suffices.

Water and electrolyte should be replaced promptly by giving KCl-NaCl-lactate mixture subcutaneously 80 to 100 cc. per kilogram of body weight, over a period of four to six hours. This mixture may conveniently be prepared by mixing two grams KCl, three grams NaCl and 40 cc. molar Na lactate to 710 cc. sterile water. To older children, this may be given intravenously. Since the parenteral use of potassium may produce heart block, the rate of intravenous injections and the patient should be watched attentively. If cyanosis and slowing of the cardiac rate result, the potassium concentration must be corrected by injection of glucose, or by the injection of calcium lactate, of calcium ascorbate, or of a combination of the two.

After this initial replacement, the continuing loss of fluids and salts can usually be replaced by giving orally a mixture of one part KCl NaCl-lactate solution to two parts of 5% glucose in water. Total intake should be about 150 cc. per kilogram of body weight each 24 hours. If the patient appears to need more fluids, they may be given by hypodermoclyses in small babies or intravenously in older children, using salt solution or glucose or a combination of the two, with or without Ringer's solution.

Some infants' serum calcium falls very low late in the course of diarrheal disease or during convalescence. In such cases, 10 to 20 cc. of a 10% solution of the gluconate or ascorbate may be given intravenously, and very slowly.

Thiamine, riboflavin and niacinamide may be added to the intravenous solutions. In all cases, multiple vitamin preparations should be given these patients as soon as they can be fed orally. Liver extract should be given intramuscularly two to three times weekly and continued for some time.

The practice of giving everyone with diarrhea an initial dose of castor oil has no foundation. It can add insult to injury and is not recommended.

OTHER DRUGS

The various Kaolin-pectin mixtures may do good after dehydration is corrected and the initial fasting period passed. In our hands Resion® has proven more effective. Resion is a mixture of three adsorbing agents — polyamine formaldehyde resin, synthetic sodium aluminum silicate (zeolite), and a synthetic magnesium aluminum silicate—in a palatable vehicle. Many series of cases have shown this preparation to be effective in removing the toxins, irritating substances, and even bacteria, from the gastro-intestinal tract by the process of adsorption.

ANTIBIOTICS AND SULFONAMIDES

It is doubtful that the sulfonamides reduce the mortality in diarrhea. The routine use of one of the antibiotics may reduce the number of complications, particularly pneumonia. Chloromycetin may have some effect on Shigella-caused diarrhea. It would be unwise, even disastrous, to rely solely on drug therapy and disregard the importance of correcting dehydration.

Many of the very ill babies come

to the hospital with the history of having been taken sick "only yesterday" or "today." Such misinformation must be considered when the child is to be discharged. Be slow to send a child back to what must be an uninterested or ignorant attendent until he is able to stand a little more abuse.

The appearance of diarrhea in an infant should strike a warning bell in the mind of the physician. Remember that we are dealing with a delicate mechanism that can become so disordered in a short time that the downward trend may become irreversible while we procrastinate.

The Eunuchoidal Syndromes

Eunuchoidism may be the main feature in 4 of the hypogonadal disorders:

1. Hypogonadotropic eunuchoidism.
2. Eunuchoidism with spermatogenesis.
3. Primary hyporchia.
4. Pubertal seminiferous tubule failure.

The presence of eunuchoidal characteristics always indicates onset of the hormonal insufficiency prior to or during puberty. A few clinical variations may aid in the differential diagnosis. The amount of urinary 17-ketosteroid excretion is of little value. Testicular biopsy offers a rather clear-cut means for accurate diagnosis of the eunuchoidal syndromes.

Jacobson, W. E., *Minnesota Med.*, 40:95-98,1957.

ORIGINAL ARTICLE

Why Not Use Radiation Therapy?

Some clinicians lean heavily upon x-rays for diagnosis and cancer treatments, but their value in treating benign disorders is underestimated

HERBERT R. ZATZKIN, M.D.,* *Hempstead, New York*

The initial skepticism which greeted the use of the roentgen ray is reflected upon with some amusement today. It would appear that early doubt gave way to acceptance, and that once more we have entered the phase of doubt. This is most unfortunate and it is imperative that physicians, whatever their specific interest, take measures to insure that this valuable diagnostic and therapeutic tool, left to us as a legacy by Dr. Wilhelm Konrad Roentgen, does not fall by the wayside.

REASONS FOR DECLINE IN POPULARITY

Perhaps in no small measure is the status of radiation therapy today the result of public misinformation. Sensational journals warn the populace of the "hidden death menace about us," as described in a recent issue of a popular magazine. Some laymen have associated the fearful burns suffered by the victims of the Hiroshima and Nagasaki disasters with the administration of radiation therapy by a physician. Without scientific background no one can appreciate the enormous dosages these victims received, the energies generated by the blast, and the fact that total body irradiation was the rule.

Radiologists have come to expect support by the general practitioner in their campaign to inform the pub-

*Director, Dept. of Radiology, Meadowbrook Hospital.

lic in this regard, but many physicians harbor some of the same misconceptions, so little help will come from this quarter. A simple example should suffice to indicate the dose range in which diagnostic procedures are carried out.

With a single conventional chest x-ray (14x17) the patient receives 0.05 *r* of radiation. On the basis of dosages given by the Brookhaven National Laboratory, the radiation reaching the gonads from the conventional chest x-ray examination (or regular photofluorograph) is apparently 1/200th of the total dosage received, or 0.00025 *r*. From a genetic viewpoint it is stated that not more than a total of 10 *r* of radiation should reach the gonads from conception to age 40 (Nine-tenths of children are born to parents under 40 years of age). With the above as a standard a patient would need to have 4000 conventional chest x-ray examinations made before his gonads received 10 *r* of radiation. It is obvious that diagnostic x-ray examinations carry an extremely wide margin of safety. (Many radiologists consider the 10 *r* gonad exposure limit entirely too low.) The cause for alarm is unfounded.

RADIOLOGY EDUCATION

Some of the present difficulty stems from the fact that this subject receives but scanty attention in the medical school curriculum. Interns and residents are found woefully lacking in any appreciation of the mode of action of x-rays or their beneficial therapeutic effects. Another reason for the decline in popularity of therapeutic radiology is the fact that we are in an age of antibiotics, presented to laity and profession by the keenest advertising minds in our country today. It is difficult for radiation therapy to compete. It matters but little that, in the treatment of carbuncles, e.g., there is no chemotherapeutic agent which can hasten resolution and produce as dramatic an effect as radiation therapy. An important effect is to liberate an endogenous agent which, by affecting the pituitary gland, causes the release of adrenocorticotrophic hormone. This latter mode of action of ionizing radiations, as set forth by Hans Selye, makes it evident that such therapy will be of value in conditions which are helped by the administration of ACTH. We administer this drug for asthma, bursitis, rheumatoid arthritis, lymphoma, etc. This list parallels a similar list of conditions benefited by x-ray therapy.

EXTERNAL OTITIS

Knowledge concerning the use of x-ray therapy in this distressing condition has never been adequately presented to the man who sees most of these cases, the general practitioner. In the author's experience, many cases of external otitis have been so treated, and relief has been prompt and dramatic. When weighed against periods of incapacitation and manipulative therapy, as well as the need for high dosages of costly antibiotics, roentgen therapy would seem to be the treatment of choice.

LYMPHOID HYPERPLASIA

Ionizing radiation plays an important role in the treatment of lymphoid hyperplasia, tonsillar or nasopharyngeal, particularly in children. When used sparingly in youngsters in whom cardiac or other complica-

tions preclude surgery, dramatic hearing improvement is the rule, and many are saved from surgical procedures.

THROMBOPHLEBITIS

Small doses of ionizing radiation applied not only to the popliteal fossa or affected vein, but to the deep iliac chain as well, will hasten resolution in a high percentage of cases. This method has received such scant application that there are no series available for comparison with more conventional methods.

BURSITIS

In the past year we have treated patients previously subjected to infrared therapy, diathermy, hydrocortone injections, procaine injections, ultrasonics, etc. Any of these measures may succeed in a given case, for the disorder is self-limited. Many patients, however, are in acute distress and incapacitation may be so lengthy that active treatment cannot be denied. The method found uniformly successful in the acute case of bursitis (particularly with the first bout of illness) is x-ray therapy. In the chronic state, the percentage of success will fall to near 50%.

RHIZOMELIC SPONDYLOSIS

Radiation therapy to peripheral joints has rarely been attended with success in rheumatoid arthritis. The chief role of ionizing radiations is in the treatment of symptoms referable to the spine. The improvement here is often dramatic. In common practice, the therapist outlines cervical, dorsal, upper and lower lumbar and sacro-iliac portals. Dosages of 250 *r* to one portal per day till each portal receives 250 *r* are usually sufficient to bring about a remission. One should make measurements of the chest expansion and the distance from finger tips to floor before, and after 3 weeks of therapy. Such therapy may be repeated several times, though subsequent effects are not as good as after the initial course, sufficient improvement has been observed to justify its repeated use.

HYPERTROPHIC ARTHRITIS

There is an occasional case which will show some improvement after small dosages, though it is conceded that one should employ all other available means of controlling symptoms of hypertrophic arthritis before resorting to x-ray therapy. As a last resort, some amelioration of symptoms is occasionally afforded.

PNEUMONITIS

It was quite common, as recently as a decade ago, to utilize radiation in the treatment of pneumonias, particularly in viral pneumonias of infants. It was common practice in many hospitals to give small doses of ionizing radiations through small portals localized to patches of pneumonitis and the results were generally good. It is extremely rare today for a child with pneumonia to be referred for radiation therapy. On occasion, adults are so treated, usually those who fail to respond to antibiotics. During the last war, atypical pneumonias in servicemen were treated by x-radiation in Veterans' Hospitals and the results were excellent.

In a recent case, a teenager with a persistent patch of viral pneumonitis, did not respond to conventional therapy. Toxic manifestations were severe and the patient was in a desperate strait. The picture was com-

plicated by an oral fungus infestation. The general practitioner sought the aid of a radiation therapist who prescribed a course of x-ray. After 100 *r* to the affected lung, the temperature receded and the patient began to take nourishment. With a second dose the improvement was dramatic, and after a third dose the patient was on the road to recovery.

Whenever the lung is treated, the radiation therapist must be aware of the possibility of underlying tuberculosis, a disease unfavorably influenced by x-ray therapy.

ASTHMA

Ionizing radiations have a limited role in the management of certain phases of asthma. The psychological effect of being placed under an impressive piece of equipment is sufficent to produce an improvement in some patients. Nevertheless, several patients in severe status asthmaticus treated at our institution remained refractory until small doses of x-ray therapy were applied to the bifurcation of the trachea and the sinus region, when in each instance there was dramatic improvement with cessation of wheezing and return to a normal state. In one case the relief lasted but 48 hours, in others, remissions lasted for several weeks.

One asthmatic woman of 35 presented with recurrent bouts of pneumonitis. Roentgenograms showed basilar chronic interstitial pneumonitis with bronchiectasis. Every possible form of medical therapy had been of no avail. This patient was given 100 *r* over the affected lung on successive days to a total of 300 *r*. The improvement was slow, but when last heard from, she had not had a recurrence of her disability for several months and reported feeling the best she could recall in several years.

POST PARTUM MASTITIS

A decade ago, at the first sign of such a complication, all patients in some University hospitals were referred for radiation therapy. After several doses to the affected breast, prompt resolution was the rule, cellulitis and breast abscess were never seen in patients who had received such therapy. These were emergency problems and it was not uncommon to be called in the night to administer x-ray therapy to an affected breast. Also, in the post partum state, ionizing radiations have been successfully used to treat fissured nipples. Now only such patients who are sensitive to antibiotics are seen by the x-ray therapist.

THE GUILLAIN-BARRE SYNDROME

This obscure entity has no proved causative agent and no specific therapy. Since x-ray therapy is often used to relieve pain of a radicular origin and since x-rays in appropriate dosages stimulate phagocytosis and augment antibody response, some have utilized ionizing radiations for the treatment of this condition. In two cases so treated prompt relief has been reported. One was an acute case and the other had shown no improvement after six months of other forms of therapy.

The list of conditions helped by ionizing radiations includes hyperophthalmia of Graves disease, myasthenia gravis, adenitis, salpingitis and peritonitis (tuberculous), tetanus, gas gangrene, and Peyronie's disease.

CONCLUSION

It is fair to state that the radiation

therapist has much to offer the general practitioner in the treatment of many disorders. Closer co-operation would inevitably improve the quality of medical care. The radiation therapist deplores the apparent lack of interest in this form of therapy on the part of the clinician, and the public attitude of fear and distrust. It is as much the obligation of the general practitioner as of the radiation therapist to insure that the facts relating to the use of x-rays are presented to the public in their proper perspective, and that blind, unreasoning fear does not result in denying this form of treatment where it is properly indicated.

Collagen Disease of the Small Bowel

The gross appearance of the bowel in the early stages of collagen disease is one of edema, diminished tone and peristalsis, increased caliber, along with enlarged, soft lymph nodes and dilated radial lymphatics filled with white substance. The late stage appears white, sclerosed serosal surfaces, diminished tone and peristalsis, with hard, palpable lymph nodes. A study with the use of species stains shows that the "fatty substance" in the vacuoles, seen on microscopical examination, is really collagen.

The microscopical showing that collagen has replaced the muscularis and has infiltrated the subserosal and submucosal spaces of the bowel offers the final criterion.

Marshall, I., *New England J. Med.*, 255:978-983, 1956.

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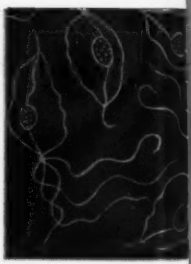


ORIGINAL ARTICLE

Continuous 24 Hour Vasodilation in the Treatment of Angina Pectoris

Time-disintegration capsules containing pentaerythritol tetranitrate reduced the severity and frequency of angina pectoris attacks*

JOSEPH T. ROBERTS, M.D., Ph.D., F.A.C.P.†, *Buffalo, New York*

It has been believed for some time that prolonged therapeutic blood levels of nitrates can stimulate development of a collateral circulatory system in the presence of coronary insufficiency. In animal studies it has been noted that seriously constricted coronary arteries may be uninfluenced, but that connecting intercoronary anastomosis may open with more blood flow after PETN or nitroglycerin.[1,2,3] Russek et al[4] confirmed clinically that PETN was the most effective drug available for prolonged therapy of angina pectoris and coronary insufficiency. Other investigators elaborated on the subject and pointed out that PETN

*Pentritol Tempules,® and the placebo capsules, used in this study were supplied by The Evron Co., Inc., Chicago.

†Chief of Cardiology, Veterans Administration Hospital. Lecturer in Medicine, University of Buffalo School of Medicine. An abstract of this study is part of the author's Scientific Exhibit on "Heart Pain: Mechanism and Relief," which was awarded First Prize for Scientific Research at the Sesquicentennial Convention, Medical Society of the State of New York, February 18, 1957; and Honorable Mention, Scientific Assembly, American Medical Association, Atlantic City, June 6, 1955.

Reviewed by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

1. Zoll, P. M., & Norman, L. R., *Circulation*, 6: 832,1952.
2. Roberts, J. T., Pathological Physiology and Mechanism of Disease, Chapter 15, ed. Sodeman, W. A., W. B. Saunders, Co., 1956.
3. Winsor, T. & Scott, C. C., *Am. Heart J.*, 49:414, 1955.
4. Russek, H. I., et al., *J.A.M.A.*, 153:207,1953.

therapy may be the difference between complete absence of symptoms and prolonged illness.[5] In a comparison of two weeks on 14 patients, little difference was noted in the effectiveness of PETN tablets and placebo.[6] The drug also increases the tolerance to exercise, and reduces the need for nitroglycerin.[7]

PETN tablets have been administered to hundreds of patients at this VA hospital during the past several years. The usual dosage was 10 to 20 mg., three to four times daily. Good clinical response often became evident shortly after therapy was instituted. Consistent clinical results encouraged an investigation of the effectiveness of continuous PETN therapy with time-disintegration capsules.*

CLINICAL PROCEDURE

A "double blind" study was conducted on 40 men and 2 women with angina pectoris of known severity, ranging in age from 29 to 67 during a period of 9 months in 1956 and 1957. Since it was found that hospitalized angina patients were difficult to evaluate owing to changes in intensity of these symptoms—probably due to adequate rest or other measures—all of the selected group except two were living at home. These patients had an established anginal pattern as to frequency and severity of attacks, relief with nitroglycerin, and tolerance for work or activity. "Placebo reactors" were rejected, as were patients who were emotionally unsuitable. Over one half of the group had been maintained on PETN tablets for more than two years, while most of the other patients were on a regimen that included other coronary vasodilators. Thus, the entire group served as a control factor in comparing: (1) patient response to intermittent vasodilation as obtained by PETN tablets, (2) patient response to continuous 24 hour coronary vasodilation obtained by the time-disintegration capsules, and (3) patient response to placebos.

Patients were told that they would receive two different dosage forms of the same drug, designated only as capsules "A" and "B," both identical in appearance. The code showing which was the active drug and which was the placebo was given only to the Chief of Pharmacy. Medication was to be taken before meals, on arising and again 12 hours later, on a daily schedule. The capsules were alternated at each bi-weekly examination of the group.

RESULTS

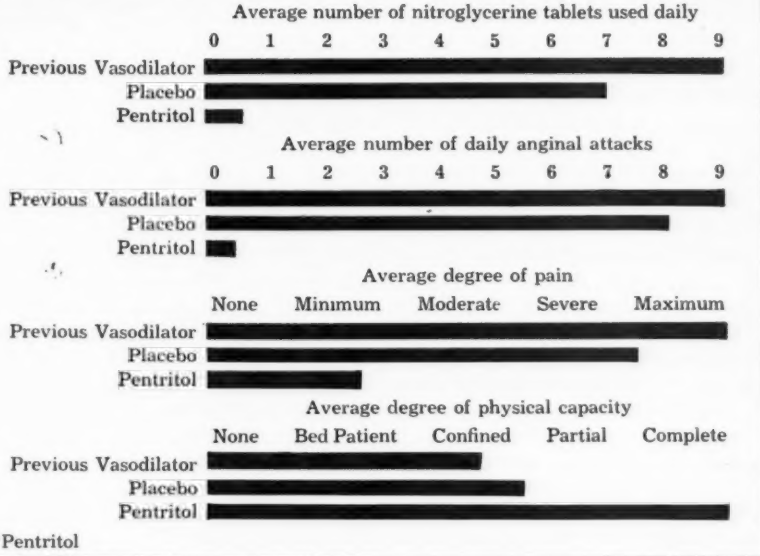
No serious side effects, such as nausea or vomiting were reported nor any contraindications established. There was no acquired tolerance to the drug, no changes in blood pressure, blood picture, pulse rate or respiration. Toxicity studies revealed that even when amounts two to three times the therapeutic dosage were given, no untoward reactions occurred. Six patients complained of minor headaches or flushing, two of minor itching of the skin, and two patients reported transient redness in old eczematoid lesions of the skin. All these symptoms disappeared after several days of therapy.

Comparing the effectiveness of PETN tablets and these time-disintegration capsules, it was found that each 10 mg. dose of PETN in tablet form attains maximum efficiency in

*Pentritol Tempules

5. Rosenberg, H. N., & Michelson, A. L., *Am. J. M. Sc.*, 230:254,1955.
6. Talley, R. W., et al., *Am. Heart J.*, 44:866,1952.
7. Perlman, S., *Angiology*, 3:16,1952.

COMPARISON OF PREVIOUS THERAPY WITH CONTINUOUS 24 HOUR VASODILATION USING TIME-DISINTEGRATION CAPSULES* OF 30 MG. PETN IN TREATMENT OF ANGINA PECTORIS



*Pentritol

1 to 1½ hours and maintains its effect for 4½ to 5½ hours.[5] Ordinarily, 10 to 20 mg. of PETN is given three to four times daily. The time-disintegration capsules, each containing 30 mg. of PETN in pellet form, are processed to release three 10 mg. doses at predetermined intervals. The initial dose dissolves immediately, the second, four hours later, and the remaining dose eight hours after ingestion. Since 10 mg. of PETN is effective for 4½ to 5 hours, each capsule provided at least 12 hours uninterrupted coronary vasodilation.

The clinical results showed that when a daily regimen of one or two PETN time-disintegration capsules were administered in the morning and again 12 hours later, all 42 patients showed improvement in all or several of the following:

1. Nitroglycerin requirements reduced or eliminated
2. Fewer or no angina attacks
3. Pain reduced or eliminated
4. Capacity for physical activity increased.

In addition, many of the patients slept more comfortably, and were free from fear and actual occurrences of nocturnal angina attacks. In contrast, the patients who took the placebos for the initial period showed little or no response. When placebos were substituted for the active drug in eleven patients they relapsed and had to be either hospitalized or confined to bed at their home.

A number of patients were rehabilitated sufficiently to engage in useful work or to actively enjoy retirement. Patients who had shown little progress through previous

years on a daily regimen of up to 80 mg. of PETN taken in tablet form, responded favorably to the routine administration of a 30 mg. time-disintegration capsule given every 12 hours. Patients with the most severe anginal symptoms were those most clearly benefited by Pentritol Tempules. They also were the patients most seriously handicapped while using the placebo.

Nitrate blood levels have been found raised in patients and animals exposed to toxic levels of PETN fumes or powder as with munitions workers who had severe vasodilation.[8] This led Bjerlov[9] to use PETN in place of nitroglycerin, restricted during the war, in treating angina.

The general condition seemed to improve in some patients with associated cor pulmonale, pulmonary emphysema, paroxysmal ventricular tachycardia, frequent premature beats, peripheral and cerebral vascular disease. This improvement was shown by greater ease of breathing and increased activity tolerance, by more freedom from disturbing rhythms, and improved circulation to ischemic fingers, legs and feet.

PETN time-disintegration capsules were taken in conjunction with digitalis preparations, quinidine, thyroid, alcohol, salicylates, reserpine, antibiotics, prednisone, codeine, dicumarol, and barbiturates without adverse effects.

SUMMARY AND CONCLUSIONS

As noted in the chart continuous 24 hour coronary vasodilation with time-disintegration capsules containing 30 mg. of PETN each, proved beneficial in reducing severity of pain and the frequency of attacks in treatment of angina pectoris. Although the table seems to indicate that the placebo was more effective than the previous vasodilator used, such is not the case. These are average figures, drawn from the entire statistical record. Initially, the case histories indicated a poor response to placebo with improvement noted toward the final phase. It is surmised that uninterrupted coronary vasodilation stimulated development of a secondary coronary circulatory system reducing frequency and severity of attacks, even during intervals when on placebo. Improvement was reported by all 42 patients participating in this double-blind study. Ease of usage minimized unmedicated intervals due to delayed or forgotten medication. This continuity of medication lessens the danger of coronary flow being interrupted by vasospasm or vasoconstriction. For 1½ hours following ingestion of a long-acting PETN tablet, the patient may be especially vulnerable to angina. This is a recurrent problem on arising, when the early morning rush often precipitates an attack. However, the reported vasodilation provided by the time-disintegration capsule taken the previous night apparently controlled these early morning episodes.

Some minor side effects appeared, but they were transient and easily controlled.

Some patients who had shown little response to other vasodilators, including tablets of PETN, improved considerably when they were maintained on one or two PETN time-disintegration capsules given every morning and evening.

This medication proved a beneficial adjunct in managing angina pectoris, with or without accompanying coronary disease.◀

8. Von Oettingen, W. F., et al., USPHS Bulletin No. 282, 1944.
9. Bjerlov, H., *Svenska Lakartidn*, 40:694,1943.

ORIGINAL ARTICLE

Treatment of Caustic Burns of the Esophagus

A report of five mild to moderate cases of acute caustic burns satisfactorily treated with cortisone, antibiotics and early dilations

HARRY R. MORSE, M.D., *West Hartford, Connecticut*

The pediatrician and the general practitioner commonly see these patients first, and since they are rare, may often be at a loss to know how to correctly manage them.[1] The most common such agent encountered is 95% sodium hydroxide (NaOH), present in many of the cleaning fluids and washing powders in varying strengths. Some of the other caustics are ammonia, iodine, lysol, phenol, mercury bichloride, sodium hypochlorate (Clorox), sodium carbonate, potassium carbonate, hydrochloric acid and sulfuric acid[2]. Most accidents occur between the ages of one and five. These products must be kept under lock and key in the home.

CLASSIFICATION

Burns of the esophagus may be classified as skin burns into first, second, and third degree burns. However, the classification cannot be as accurate since our visualization is limited to the narrow field of an esophagoscope. The mouth and pharynx showing no evidence of burn is no proof that the esophagus is not burned. The presence of a burn must be assumed until proved otherwise. A burn on the lips or mouth or pharynx does not always mean that the esophagus is burned. The diagnosis must be established by careful esophagoscopy. A delay of

1. Jackson, C., *Diseases of Nose, Throat, and Ear*, W. B. Saunders Co., 1946.
2. Kernodle, G. W., et al., *Am. J. Dis. Child.*, 75: 135,1948.

two to three days in instituting treatment may mean the difference between a stricture and years of therapy or a normal esophagus. Complete healing with re-epithelization requires weeks to months. Following the acute stage, the edema subsides and there may be no dysphagia. This may lull us into a false sense of security. Insidiously, stricture may develop in the course of weeks or months, even after a latent period of many years.[3] Strothers states "once the esophagus has been burned, stricture may develop at any time in the life of the patient."

THERAPY

In such a serious situation it is far better to err on the side of overtreatment than to trust to luck.

1. The caustic agent must be neutralized. If an alkali is ingested, vinegar, lemon juice or orange juice may be employed; if in doubt as to the agent, milk, olive oil, glycerine, or egg white should be given. An acid solution should be neutralized with any antacid, but not in excessive quantities, particularly soda bicarbonate, since there is some danger from gaseous distention of the gastrointestinal tract.

2. Gastric lavage is contra-indicated in an acid burn because of the danger of perforation; with an alkali burn it is an accepted measure.

3. Forced vomiting is condemned. The patient will often vomit spontaneously; there is a very real danger to induced emesis due to a second exposure of the esophagus to the caustic agent.

4. An adequate airway must be assured. In severe burns involving the hypopharynx and larynx, a tracheotomy may be necessary.

5. Relief of the severe pain is important in combating the primary shock present in severe burns.

6. General supportive measures, fluid balance and nutrition must be maintained. This requires careful observation clinically and the aid of laboratory studies.

7. Prophylactic antibiotic therapy not only helps in the reparative processes but also in preventing the pulmonary infections which frequently accompany upper esophageal obstruction due to spill-over of the pharyngeal secretions into the respiratory tract.

8. Corticosteroids have wonderfully changed the prognosis in these cases.[4] However, the steroids inhibit fibroplasia, so may favor spontaneous perforation of the esophagus. Weisskoff has demonstrated that no strictures developed in dogs which were treated with cortisone and antibiotics.[5] The controls treated actively with dilation, but without cortisone, developed strictures. A delay of 48 hours in starting cortisone therapy has failed to prevent fibroblastic proliferation. Fibrosis may be present as early as the end of a single week.

9. An esophagoscopy must be performed. One cannot subject a patient to a long series of dilations unless the diagnosis is firmly established. X-ray examination is notoriously weak in establishing the diagnosis of early strictures of the esophagus and will not demonstrate the presence or absence of a burn. The esophagoscope should be used within three to

3. Stothers, H. H., *Arch. Otolaryng.*, 56:262,1951.

4. Rosenberg, N., et al., *Arch. Surg.*, 63:147,1951.
5. Weisskoff, A., *Ann. Otol. Rhin. & Laryng.*, 61: 681,1952.

four days of the burn, and treatment instituted as soon as the diagnosis is established.

10. We can not rely completely on the corticosteroids to prevent stricture of the esophagus. Once the diagnosis is made, in addition to the measures named, active and early regular dilations of the esophagus should be carried out. In most cases, this may be performed using mercury-filled bougies. More severe cases may require other techniques, and extremely severe burns are best dilated by the retrograde method.

SURGERY

Surgery is advised only if conservative therapy fails and for cases with restricted severe stenosis.

SUMMARY

Caustic burns of the esophagus continue to be a vexing problem. The development of the steroids has been the most significant advancement in this field since Salzer first developed the early active therapy of corrosive burns. Five cases of acute caustic burns of the esophagus, treated with cortisone, antibiotics and early dilations were followed for 8 months to 2 years. No strictures have been encountered in this period of observation. It would be extremely hazardous to draw any hard and fast conclusions from such a series of cases, but one has some basis for encouragement with this regimen.

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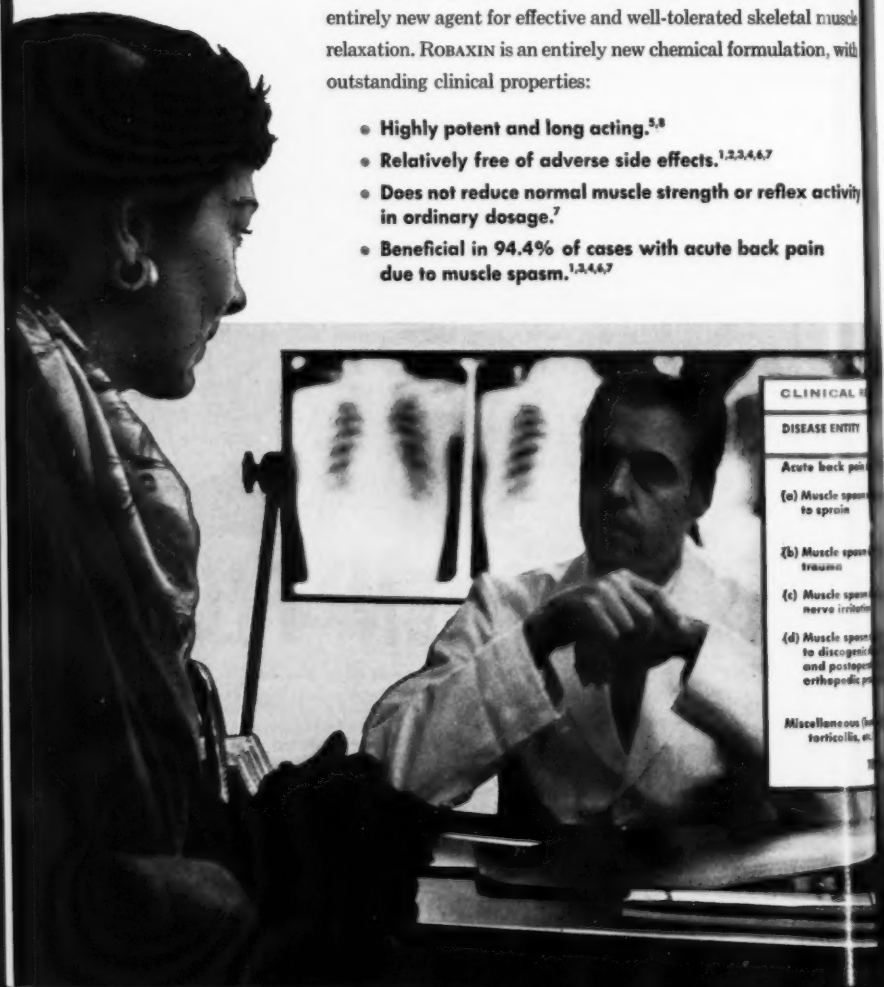

ORIGINAL ARTICLE

Nausea and Vomiting of Pregnancy Treated with a Sustained Release Form of Prochlorperazine

Apparently by acting directly on the vomiting center, this antiemetic and ataractic agent also reduces anxiety and tension

IRWIN L. PEIKES, M.D., *Norristown, Pennsylvania*

The difficulty of controlling nausea and vomiting by the administration of oral medication on awakening is that many patients vomit the medication almost immediately. On the other hand, patients often find that if symptoms are absent on arising, nausea and vomiting do not constitute a problem for the remainder of that day. For those reasons it was decided to evaluate the efficacy of a sustained release form of prochlorperazine, a new antiemetic and ataractic agent, in dealing with nausea and vomiting seen in obstetrical patients. In sustained release form the therapeutic effects of the medication, given at bedtime, should last through the night and into the following morning.

PRELIMINARY STUDIES

Preliminary clinical investigations of the sustained release form of prochlorperazine used in this study* showed that a single oral dose of this form of the drug could provide effective antiemetic and tranquilizing activity over a period of ten to twelve hours. In sustained release

*Compazine®, Smith, Kline & French Laboratories, Philadelphia.

form the active drug is supplied in a capsule as hundreds of tiny pellets coated with varying thicknesses of a digestible film, so that a uniform supply of the medication is released for absorption over an extended period.

LABORATORY AND CLINICAL STUDIES

In laboratory studies prochlorperazine was found to have up to six times the potency of chlorpromazine in blocking apomorphine-induced emesis in dogs.[1] It apparently acts directly on the vomiting center as other phenothiazine compounds have been shown to do.[2] Investigations of its antiemetic activity in patients with advanced cancer and other chronic diseases showed that the drug provided good or excellent results in 95% of the patients treated for nausea and in 87% of those treated for vomiting.[3] In another study prochlorperazine proved to be effective in suppressing nausea and vomiting at less than half the usual dosage required with chlorpromazine.[4] One investigator reported using the drug as a tranquilizer to treat office patients suffering from mild mental and emotional disturbances; prochlorperazine provided relief from psychoneurotic symptoms in over 90% of these patients.[5]

METHOD

Over a period of three months 35 pregnant women were selected for this study. Twenty-five complained of both nausea and vomiting, and ten patients complained of nausea alone or nausea with fatigue or diarrhea. The ages of these patients ranged from 16 to 39 years, the average being 26 years. Twelve of these patients were primiparous and one was in her sixth pregnancy.

Early in the study the patients were supplied with 10 mg. sustained release capsules. As the 15 mg. capsule soon became available, the usual dosage was one 15 mg. capsule at bedtime. In two instances one capsule was given in the morning on arising and one at bedtime. Duration of treatment ranged from 7 to 42 days (average: 17 days). Concomitant therapy was used in five cases: one patient was given a bioflavonoid preparation and four, complaining of fatigue, were given a tablet combination of dextro-amphetamine sulphate and amobarbital.

RESULTS

The results were classified as excellent when prochlorperazine provided complete relief of nausea and vomiting with no recurrence during the day; seven patients achieved such a response. When definite although incomplete or temporary relief was obtained, the results were called good; 23 patients obtained good results. In five instances the drug afforded little or no relief of symptoms.

NEGLIGIBLE SIDE EFFECTS

Side effects attributable to prochlorperazine were mild and transitory. One woman complained of mild dizziness; as treatment with prochlorperazine was continued the dizziness disappeared. Slight transient drowsiness was seen occasionally, but in no instance was there evi-

1. Investigational Use Circular, Smith, Kline & French Laboratories, 1957.
2. Moyer, J. H., *M. Clin. North America*, 41:405-432,1957.
3. Smithy, G., & Homburger, F., *New England J. Med.*, 256:27-28,1957.
4. Friend, D. G., & McLemore, G. A., Jr., *Arch. Int. Med.*, 99:732-735,1957.
5. Vischer, T. J., *New England J. Med.*, 256:26-27, 1957.

dence of more serious side effects. Prochlorperazine often caused these patients to feel more like being active and attending to their household duties.

SUCCESS IN RESISTANT CASES

In most cases the response to the drug was good when prochlorperazine was administered before sleep, and nausea and vomiting usually were absent when the patient got up in the morning. This drug succeeded in three resistant cases in which other agents failed to provide relief. One patient implied that this was the best trimester of her six pregnancies. Under prochlorperazine therapy 30 patients maintained their weight.

ADDITIONAL MEASURES REQUIRED IN TWO CASES

Of those instances in which prochlorperazine provided little relief, one, a primiparous woman 21 years of age who was complaining of both nausea and vomiting, was given the 10 mg. sustained release capsule to take twice daily. Although she showed some initial improvement—and her vomiting subsided—the vomiting began to increase in spite of therapy and became so pernicious that she had to be hospitalized. Treated with sedatives, intravenous fluids and supportive therapy, she recovered completely. In a second instance prochlorperazine had little effect and vomiting became increasingly severe, but the patient responded to dextro-amphetamine sulphate, meclizine hydrochloride and intramuscular administration of vitamins B_1 and B_6.

DISCUSSION

The fact that 30 of the 35 patients in this study (86%) achieved good or excellent results indicates that prochlorperazine in sustained release form is an effective drug in controlling one of the most common of obstetrical problems. The drug appears to exert an effective action on the vomiting mechanism. Taken at bedtime, the sustained release form of prochlorperazine permits the usual patient to awake in the morning free of distressing symptoms. Furthermore, the drug reduces anxiety and tension, which tend to aggravate the morning emesis. Thus the drug interrupts the cycle of nausea-anxiety-nausea. It is important, as with any antiemetic, that the physician be aware of the possibility of masking symptoms of more serious organic disease.

SUMMARY

Prochlorperazine was administered in sustained release form to control symptoms of nausea and vomiting in 35 pregnant patients. The usual dosage was one 10 mg. or 15 mg. capsule given at bedtime. Duration of treatment averaged 17 days. Seven patients obtained complete relief of symptoms with no recurrence during the day, and 23 patients obtained substantial relief. The drug was ineffective in five patients. Side effects were mild and transitory. Apparently acting directly on the vomiting center, prochlorperazine also reduces anxiety and tension, which tend to increase the severity of symptoms. The sustained release form of prochlorperazine appears to be an effective agent for the control of nausea and vomiting of pregnancy and is particularly valuable in the treatment of "morning sickness."◄

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Niacinamide	10 mg.	Iodine (as KI)	0.01 mg.
Riboflavin (B_2)	2 mg.	Potassium (as K_2SO_4)	0.835 mg.
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Ascorbic Acid (C)	50 mg.	Magnesium (as MgO)	0.15 mg.
Vitamin K (Menadione)	0.5 mg.	Molybdenum (as $Na_2MoO_4 \cdot 2H_2O$)	0.025 mg.
Folic Acid	1 mg.	Zinc (as ZnO)	0.085 mg.
Ferrous Fumarate	90 mg.	Calcium Carbonate	575 mg.

Dosage: One or more capsules daily. **Supplied: Attractive, re-usable bottles of 100 capsules.**

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ORIGINAL ARTICLE

Undulant Fever

Undulant fever is most frequently encountered in rural practices; the features, diagnosis, treatment and complications of this condition are outlined

BEN N. SALTZMAN, M.D., *Mountain Home, Arkansas*

Any person who is in direct contact with milk cows, hogs or goats, and anyone drinking unpasteurized milk may be exposed to undulant fever (brucellosis). It generally occurs during the summer months. It may readily be mistaken for malaria or tularemia. Formerly, it was confused with typhoid fever.

The most characteristic feature of the disease is the prolonged, irregular fever accompanied by weakness. Concomitant symptoms are joint pains, muscle pains, profuse sweating and chills.

The diagnosis is made from the history of contact with farm animals, and from the history of the ingestion of unpasteurized milk. It is verified through the use of an intracutaneous test, an agglutination test and a blood culture. Unless the titer is high in the agglutination test, this alone cannot make a certain diagnosis.

Complications of undulant fever are often seen. Chief among them are arthritic symptoms. Otitis media is often recognized. Infection of the gonads may be noted — salpingitis, epididymitis and orchitis. The blood picture shows an active lymphocytosis with a high proportion of immature lymphocytes.

Whether at home, in the office or in the hospital, the treatment is the same. Bed rest is ordered during the acute illness, and for ten days to two

weeks after the subsidence of the acute symptoms. Chlortetracycline (Aureomycin) is given in 250 mg. doses every six hours, day and night, until the fever has subsided for 72 hours. Any exacerbation of the disease is treated in the same manner. The usual supportive measures of bed rest and vitamins, plus antipyretic drugs, are ordered.

With the increase in sanitation measures on farms, undulant fever is rapidly disappearing.

Ice Water Therapy for Stingray Injuries

Immersion in ice water is the most effective method for treating painful stingray wounds, according to a report by three Galveston physicians. Among the 21 patients so treated, pain was completely relieved in 10 to 20 minutes in 18 cases in which cryotherapy alone was used. Two patients receiving only partial relief in 60 to 90 minutes were treated with ice packs. One who received only opiates had partial relief in two hours. The ice pack or chilled water did not accomplish the same result as the foot immersed in a heavy suspension of ice and water, to six inches about the site of injury.

(Most likely this treatment would be effective in injuries inflicted by other stinging fish and in insect stings—*Editor.*)

Mullins, J. F., et al., *South. M. J.*, 50:533,1957.

ORIGINAL ARTICLE

Treatment of Varicose Veins

Essential steps are thorough examination, adequate surgical procedure designed for the case at hand, and persistent follow-up treatment

H. O. McPHEETERS, M.D., *Minneapolis, Minnesota*

The venous anastomosis is so extensive in the superficial fascia that the mere closure or removal of one varicosed segment will have little value. Normally there are many connections between the superficial and the deep venous systems in the lower extremity. It is only during the past 5 years that the full importance of these communicating or perforating veins has been realized by the profession in general. Sherman[1-2] has shown this the best of any writer. The treatment of many cases has been a complete failure because of the lack of recognition of these communicating veins.[3]

1. Sherman, R., *Ann. Surg.*, 120:772-784,1944.
2. Sherman, R., *Ann. Surg.*, 130:218,1949.
3. Meyers, T. T., *J.A.M.A.*, 163:87-92,1957.

The basic pathology in varicose veins with the subsequent reversal of flow is best explained by a weakening of the vein wall, either congenitally or developing following heavy labor, or disease such as phlebitis. With the weakening of the vein wall and the subsequent dilation of the lumen the valves become incompetent. In this way the blood in the veins flows whichever way gravity pulls it.

Each case must have close examination and study of the patient from groin to toes.

Very commonly we find extensive varicose veins secondary to and complicating obliterating endarteritis, or the two associated. Then we must

decide which of the two is more important. Oftentimes the symptoms and complaints are entirely misleading, and it may be that both the vein and the arterial condition are in need of care.

THOROUGH HISTORY AND EXAMINATION

Is it the long saphenous or the short saphenous system that is at fault? Seldom is it entirely the one or the other. Only by thorough examination can it be discovered just where the reverse flow comes from. A very detailed search must be made for incompetent perforator veins—often found in the leg, internal to the tibia and along the midline, very commonly in the midcalf directly from the short saphenous, and one or two perforators external at the mid-third. Finally, they are found from the deep vein in Hunter's canal.

A careful history many times will disclose that the skin on the leg and foot was blue at birth, or that large varicose veins began to show on the lower leg in the early years of life. This condition spread over the entire lower extremity would be indicative of a congenital venous hemangioma, or even an arterio-venous fistula. Many times by careful inspection from groin to toes, the basic decision can be made. Then carefully palpate the leg up and down as the patient stands on a foot stool. Have a hand on either side of the extremity and pass your fingers up and down the leg, then repeat. You can easily find the complete varicose vein formation, with its origin and the perforators, if you merely feel. Use "walking palpation," the fingers moved about over the skin surfaces, using varying pressure with the tips. As the perforators or communicating veins are found, the patient will complain of a pain as pressure is made, stretching the fascial edges of the opening. Repeat the test several times and then mark the point for your ligation.

By tapping on the veins internal to the knee or along its course with a rapid triphammer test, using two or three fingers, the pulse can be felt as it is carried upward and downward in the vein and in this way the course of the vein can be followed through the obese thigh to the saphenofemoral junction.[4] Often the veins can be located in the obese thigh by the percussion method, even though nothing can be seen or felt otherwise.

The Trendelenberg test, carefully employed, as per the suggestion of Ochsner[5], gives information as regards the reverse flow which no other examination will give. The test made with the tourniquet at different levels will locate any incompetent perforator or communicating veins.

SURGERY

Any surgical attempt which may be made to correct varicose veins should be above *all* collateral tributaries, whether at the saphenofemoral junction at the groin, at the sapheno-popliteal junction, or at any large tributary with a marked reverse flow. Every ligation must be done *under* the fascia. At the groin five tributaries are usually found. Any one of these may become so enlarged as to carry the reverse flow.

The varicose veins that should be

4. McPheeters, H. O. & Kusz, C. V., *Postgrad. Med.*, 13:4,1953.
5. Ochsner, A. & Mahorner, H. R., *Ann. Surg.*, 107:927-951,1950.

ligated and stripped are:

1. Any vein recurring after careful injection.
2. Any vein 1½ cm. or larger at groin or popliteal space.
3. Any vein with a definite marked reverse flow from the groin, through a perforating vein or from the popliteal vein.
4. Any vein with a marked percussion pulse at groin. (A positive PPT finding).

The patient should be examined the evening before surgery, after having been on his feet all day. A mark is made at the point of the incision at the groin as well as other areas of planned incisions down the leg.* By means of the percussion pulse and palpation the course of the vein can easily be found throughout the thigh and leg. The course of the vein should be marked with separate dots, perforator veins especially marked with an "X." If it is a bilateral, both sides are marked at the one time. The case is again reviewed just before surgery so as to have the entire case fresh in mind with the decision as to just where dissection, excisions and strippings are to be done. The operation should proceed strictly as decided at this examination. All incisions and expected perforator sites should be followed through as planned. Oftentimes the stripper will remove the main vein only an inch from the perforator, but if the perforator is left open through the hole in the fascia you can be assured that new veins will form from this source in the course of a year's time.[4]

The stripper preferred, the Linton, is pliable and of different lengths. A 16 inch stripper with a leading tip of 1 min. and trailing tip of 5 min., with another stripper with a trailing tip of 15 min. and another 32 in. long with a trailing tip of 20 min., is the set most commonly used.

Both legs are prepared, going as high as the navel, with gloves over the toes and the scrotum strapped upward in the male. The high ligation incision is parallel with the groin and usually about 3 in. long.[6] The saphenous vein will be found surrounded by a fascia sheath which is continuous with a covering of the walls of the femoral and the tributaries. Incise through this sheath and then dissect the sheath off of the veins with a wiping dissection. This will minimize the bleeding considerably.

Some advise simple ligation at the groin, nothing being done to the vein distally. Experience has shown that unless the ligation has been above *all* tributaries, and unless the distal vein has been thoroughly and completely stripped out, there will be a complete recurrence of the varicose system in time.

The strippers may be passed from above downward or from below upward, whichever is easiest in the case. The point of importance is that it should be done thoroughly and completely. The perforator vein is often found to coil on itself just outside the fascia and then join the main saphenous an inch away. If the stripping alone is done, this coiled tip will remain and the foramen will be wide open. It is essential that this vein be dissected under the deep fascia and the fascia closed with interrupted sutures. There may be only one perforator or there may be many. Carefully look for them all.

*Vaporite Marking Pen.

6. McPheeters, H. O., *Minnesota Med.*, 39:271-275, 1956.

Oftentimes there is a perforator from the deep system just below the internal malleolous which feeds upward into the ulcer area over the inner ankle.

A double layer of gauze is wrapped about the entire extremity and then with the leg in elevation of 10° a four inch elastoplast bandage is wrapped *very tightly* about the thigh with a three inch bandage about the leg. If the dissection has been extensive, or the veins unusually large, a pressure pad of cotton and gauze should be applied along the course of the stripped vein and area of dissection. The elastoplast bandage will thus maintain and continue the pressure along the area of dissection. The elastoplast bandage will hold your support in place constantly where it is needed. If a simple bandage is used, it will become loose after a few minutes of walking and then the patient has no support.

The legs are supported in elevation of 10° continually for three days, when the patient is not walking. Ambulation begins as soon as possible, usually in four hours postoperatively. The patient then walks five minutes of every hour during the day. This routine is continued until the bandage and sutures are removed on the eighth day. Following this the Ace bandage must be worn on the leg for six to eight weeks, or as long as the legs are *sore, tender* or *swollen.*

In the obese woman of 45 to 55 years, it is common to find the veins scattered throughout the superficial fat of thighs and legs. Usually in these cases the veins are so tortuous they cannot be stripped but must be carefully dissected out. These patients are prone to develop more varicose veins as time goes by. It has been a rule for years to insist that these patients reduce to near normal weight before operation, and return each year for injections or operation of the varicosities that will continue to form.

CONCLUSION

The best treatment for varicose veins today is a surgical procedure adequate for the individual case at hand. This can only be determined after a careful history, inspection, palpation, percussion and the use of the Trendelenberg test.

In some cases ligation, plus stripping, plus adequate follow-up injections, plus support, may be all that is needed. In other cases an adequate ligation with extensive stripping, blunt dissection, and even the Linton operation with excision and skin graft must be performed. The patient must always wear adequate support *as long* as it is needed.

This report is based on the ligation with immediate retrograde injection of 6,500 cases of varicose veins, between the years 1932-1949, and the ligation with stripping and follow-up injections of another 4,698 cases from 1949-1957. Of these latter 3,810 were high ligations and 888 were short ligations. Total number of ligations, 11,198.◄

ORIGINAL ARTICLE

Treatment of Burns in General Practice

How to make a clinical evaluation of the individual case, from simplest to the most severe burns, and to determine correct burn therapy

JOHN CALVIN WEETER, M.D., F.A.C.S., *Louisville, Kentucky*

No rule of thumb can be effective in determining burn therapy; the sum of the factors must be considered in evaluating the injury and the best course of treatment. Among the most important points to consider are depth of burn, extent of area involved, patient's age and general physical condition.

DEPTH OF BURN

In most cases it is difficult to predict the depth of tissue destruction, especially in the first 12 hours after injury. The depth of tissue destruction depends on the temperature of the burning agent and the length of exposure to heat. In flash burns of the common type, e.g., by a gas oven explosion, the result at worst is a second degree burn in exposed areas; protected or clothed areas are less severely burned unless the clothing ignites, in which case the burn is usually third degree. In contrast, burns caused by spilled boiling water are usually second degree in exposed areas because of the rapid run-off, frequently third degree in clothed areas because the soaked clothing prolongs the time of skin contact. Contact with flaming liquids usually causes third degree burns, unless clothing protects the surface and is removed so quickly the skin is not severely injured. Contact with hot metals or solids almost invariably causes third degree destruction

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references: (1) Settel, E.: Am. Pract. & Digest Treat. 8:443, 1957. (2) Batterman, R. C., and Grossman, A. J.: Federation Proc. 14:316, 1955.

*Trade-mark
†U.S. Patent Pending

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unless clothing offers some protection.

As for different types of fabric, some of the newest synthetic clothes are extremely flammable and may, if ignited, cause severe burns. Full, gimsy, ruffled stick-out skirts are easily ignited by open grate fires, bonfires and birthday candles, and may "explode" if the fabric is fast-burning.

On early examination, second degree burn areas are generally pinkish red, moist, and sensitive to touch or pinprick, while third degree burns are charred brown, or pearly white, dry and insensitive to touch and pinprick.

EXTENT OF BURN

In estimating the percentage of body surface involved, the familiar "rule of nines" is a good guide in older children and adults. In children under 15, as age decreases, a greater percentage of body area is of the head and neck, less of the lower extremities.

THE RULE OF NINES

	Adults	4 year old
Head & Neck	9	18
Arms	18	18
Anterior Trunk	18	18
Posterior Trunk	18	18
Legs	36	27
Genitalia	1	1
	100%	100%

HOSPITAL VS. OUT-PATIENT TREATMENT

In borderline cases, observation in the hospital is usually advisable until there is no longer danger from shock or other complications, and the family is able to cope with the problem of caring for the patient at home. We should treat minor burns on an out-patient basis. Mandatory indications for hospitalization are severe burns, impending shock, respiratory tract damage, or the dangers of any of the common complications such as renal failure, etc.

Intravenous fluid therapy is mandatory in adults with burns involving 20%, in children 10%, of the body surface. In cases with signs of respiratory obstruction, history of prolonged smoke inhalation and extensive burns of the face, hospitalization is essential, also in cases of impending shock. Severe burns of the hands with extensive edema are best hospitalized so that elevation of the hands may be assured.

INITIAL TREATMENT

In adults with 1st and 2nd degree burns of less than 20% of the body surface, fluid can be replaced by oral administration of a solution of 3 gm. sodium chloride and 1.5 gm. sodium bicarbonate, per liter. The patient takes as much as possible. If vomiting occurs, fluids are given intravenously. In children with burns of less than 10% of the body surface, satisfactory oral intake may be by ad libitum fluids.

In more severe burns or in cases of impending shock, whole blood, plus plasma expander and isotonic saline is given, according to the following formula:

> Body weight (lbs) x area of burn (up to 50%) equals cc. fluid required in first 24 hours. Of this, ⅙ may be blood, ⅙ plasma expander, and ⅔ isotonic saline. For the second 24 hours, half this amount is given, plus ⅓ more 5% glucose in water.

Since infants and children do not handle electrolytes well, in children under 4, half the electrolyte requirement should be substituted with 5% glucose in water. Fluid administration is best regulated by observation of urinary output. An output of 50 cc. per hour is desirable in adults; in children by the following table:

Under 1 yr.	10 - 20 cc's/hour
1 - 10 yrs.	20 - 30 cc's/hour
10 - 15 yrs.	30 - 50 cc's/hour

In reviewing orders in the initial treatment of hospitalized burns, the following check-list may be helpful:

a. Type and cross match and start whole blood; venous cutdown if indicated.
b. Determine fluid requirements for first 24-48 hours according to formula, modified by clinical evaluation of patient.
c. Hourly pulse, B.P., respirations.
d. Start blood count and hematocrit for baseline, then in 12, 24, 48 and 72 hours. A hematocrit of less than 50-55 is desirable.
e. Hourly recorded urinary output per indwelling catheter.
f. Oral fluid orders (salt-soda mix, ad lib.).
g. High-protein, high-vitamin, high calorie diet.
h. Adequate antibiotic therapy; cultures; blood cultures and sensitivity tests if indicated.
i. Anti-tetanus therapy.
j. Opiates for pain.
k. Elevation of edematous extremities.
l. Observe for respiratory distress in cases of smoke inhalation (tracheotomy if necessary).
m. Observe for renal damage (daily urine analysis).

EXPOSURE VS. DRESSINGS

The exposure method offers the advantage of simplicity of treatment and permits healing without maceration and subsequent infection and loss of new epithelium. It also obviates the need for anesthesia for extensive dressing changes, permits more direct observation of progress so that in cases of question of deep second or third degree skin loss, one can predict more accurately the need for grafts.

Clean sheets are used and the patient is positioned so air can circulate freely around the burned area. A cradle prevents the bedclothes from touching the burned area, with mild heat if chilling is noted. The eschar will separate during the third to fourth week, exposing either new epithelium in healed second degree areas, or granulation tissue if the total thickness of skin is destroyed. Granulations are never left exposed, and when the need for grafts is thus determined, dressings are begun immediately, using fine mesh gauze changed every third day in preparation for grafting. Frequently this gauze is impregnated with a chemotherapeutic agent or an antibiotic ointment, and at this time cultures and sensitivity tests are done to determine the most appropriate antibiotic agent for systemic and topical use. This greatly aids takes when grafting is done.

PRESSURE DRESSINGS

Pressure or occlusive dressings, at the onset and changed every three days, are a necessity for burns of the hand which are best splinted in a position of function and elevated. Pressure dressings are preferred in circular burns where the burned area would otherwise stick to the bed sheets, and in young children if they tend to pick at their wounds. Burns of the buttocks or genitals in young children are most easily treated by exposure with changing of soiled sheets or pads as needed. This requires almost constant attendance, but the low incidence of infection is worth it.

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EARLY GRAFTING

Grafting, during the third or fourth week after injury, yields the highest percentage of takes. Beyond this period the surgeon must combat infection, anemia and protein loss with greater fervor. The physician who does not intend to do the grafts himself and who holds onto the patient beyond the first appearance of granulation tissue builds up false hopes of healing. Early consultation with the surgeon is desirable from every standpoint.

Two heads are better than one, and teamwork on the problems of fluid balance, nutrition, etc., which are encountered immediately after the injury is desirable. The surgeon appreciates the opportunity to work with the family physician from the start, and realizes that the family physician can make a real contribution toward best management and best ultimate result. The family physician appreciates the benefit of a consulting surgeon who may, by virtue of his special interest in burns, offer much from the beginning. Together, they should form a well-integrated team.

Etiology of the Transient Cerebral Stroke

Experiments on the rhesus monkey suggest that cerebral angiospasm does not occur. Transient cerebral strokes are due to cerebral vascular insufficiency, thrombosis, embolism, or hemorrhage. Cerebral vascular insufficiency is due to either cerebral vascular narrowing or an occlusion in the presence of systemic hypotension. Prompt correction of the condition causing the hypotensive state in cerebral vascular insufficiency will prevent permanent cerebral damage.

Rothenberg, S. F. & Corday, E., *J.A.M.A.*, 164:2005-2008,1957.

Selection of Anesthesia for the Individual Case

Optimum benefits may be obtained by careful choice of the most effective anesthetic and avoidance of apnea, laryngospasm or the accumulation of carbon dioxide

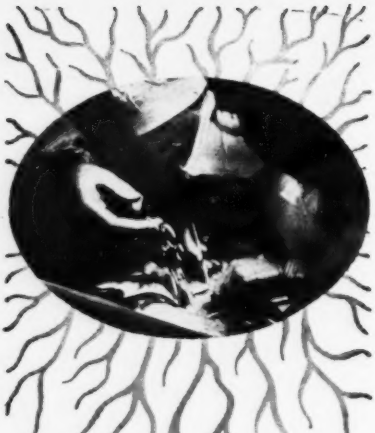
JOHN C. MONTGOMERY, M.D., *Charlotte, North Carolina*

When all accepted methods of anesthesia are available with trained personnel, what is the method of choice? Local anesthesia is safest, but is often unsatisfactory to patient and surgeon.

SPINAL ANESTHESIA

In operations for intestinal obstruction with distention, spinal anesthesia gives the best operative conditions — good relaxation with contracted intestines and a quiet abdomen. With a few precautions, adequate ventilation can be achieved. The blood volume should be near normal to help prevent hypotension and provide adequate oxygen transport. If time does not permit the restoration of the blood volume to within normal limits, spinal anesthesia should not be used and oxygen should be given. If respiration is depressed by intercostal paralysis, it should be assisted by intermittent bag pressure.

Hypotension is one disadvantage of spinal anesthesia. A vasopressor should be given before every spinal anesthesia, repeating the dose if necessary. Another disadvantage is its brief duration. The addition of epinephrine to procaine lengthens the anesthesia by 65%. Administering spinal anesthesia by repeated injections of small amounts of the drug extends the time limit as required. Nausea, with or without retching



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and vomiting, is often unavoidable. It frequently becomes necessary to put the patient asleep to stop it. A light plane of anesthesia with one of the intravenous barbiturates will frequently serve; at other times it only makes matters worse. Laryngospasm may follow the retching and vomiting. Hypoxia or even cyanosis may result. Before an open airway can be obtained, the poor risk patient may have suffered irreparable cardiac damage. If it becomes necessary to supplement the spinal anesthesia with general anesthesia, be sure it is deep enough to abolish reflexes caused by exploring the abdomen.

Spinal anesthesia is not the choice for the poor-risk patient. At times the better operative conditions obtained with it outweigh its disadvantages.

INHALATION AGENTS

Among the inhalation agents, cyclopropane and ether are the only two that can be depended on to produce sufficient muscular relaxation for abdominal surgery. Cyclopropane alone, if pushed, will sometimes give adequate relaxation. Such concentrations frequently cause cardiac arrhythmias and bradycardia. Respiration is shallow and inefficient. Cyclopropane "shock" from retention of CO_2 frequently follows the elimination of this accumulated CO_2. The addition of a muscle relaxant removes the necessity of pushing the level of anesthesia, but the problem of inadequate respiration remains. When curare is used to supplement cyclopropane, respiration is inadequate when abdominal relaxation is good, and vice versa.

The intravenous barbiturates alone rarely give sufficient relaxation unless respiration is depressed. The desired relaxation can be obtained by adding one of the muscle relaxants—intermittent doses of one of the longer-lasting agents or a drip of short-acting succinylcholine. Both the barbiturate and the muscle relaxant depress respiratory exchange, one centrally and the other peripherally. Care must be taken to see that proper ventilation is maintained. This is best done by intubation and supplementary respiration by intermittent pressure on the breathing bag. Our experience with it has been: relaxation not always good; severe drops in blood pressure during operation and frequently in the recovery room; hypotension and very shallow respiration even after recovery from anesthesia common. It is preferable not to give an intravenous barbiturate and a muscle relaxant to a poor-risk patient.

For the poor-risk patient, the primary agent of choice is ether. For induction, one of the gases or an intravenous barbiturate, just enough to produce unconsciousness. Surgical anesthesia is obtained by ether. When the jaw becomes relaxed, oxygenate the patient well, then intubate. A cuffed tube attached directly to a Y piece, with the circle filter is preferable. Aspiration around the tube is prevented. Should pressure on the bag become necessary, the stomach will not be inflated along with the lungs. The dead space of the mouth, pharynx and face piece is eliminated — an important factor in children. Leaks in the circuit are few. The pharynx can be packed, if cuffed tubes are not available. After surgical anesthesia has been achieved and the patient stabilized, little additional ether is needed.

Replacement of blood loss and maintenance of adequate ventilation are of primary importance. Prevention of hypoxia and hypercardia is dependent on ventilation. If adequate respiration can best be maintained by taking over respiration, then use controlled respiration. Supplementing the inspiratory phase of respiration gives adequate ventilation in the majority of cases.

We have used the Jefferson ventilator in a few cases—primarily for procedures involving the open chest. It provides both positive and negative pressure. With hand pressure we expand the lung and let it empty by its own elasticity. With the ventilator, the lung is emptied by the negative pressure phase—of particular value in case of emphysema. The ventilator has been of great value in some cases where oxygenation was difficult.

Local anesthesia is safest, but sometimes unsatisfactory. When the spinal technique is used, the baby is unaffected, and blood loss is much less. A small dose—75 mg. of procaine or less—gives anesthesia for one hour. If the baby is full term, general anesthesia may be used. With delivery of the baby within 10 to 15 minutes from induction, intravenous anesthesia is satisfactory. After this, resuscitation of the infant may be necessary. Cyclopropane with or without ether is satisfactory; any agent if mother and child are both well oxygenated.

SUMMARY

The principles of anesthesia are the same for poor-risk patients as for the good. Use the agent with which the anesthetist is most proficient. Allow time for a slow, smooth induction. Avoiding laryngospasm, apnea, and breath-holding will save time.

North Carolina M. J., 18:61-65,1957.

Management of Uremia

Antibiotics, electrolyte and fluid restriction during oliguria, high-calorie intake, removal of retention products and the correction of body chemistry are all essential

MARSHALL W. ALCORN, M.D., *Bay City, Michigan*

Neubauer and Dunsmore[1] treated a series of 84 patients suffering from uremia and acidosis of intrinsic chronic renal disease. With patients in coma, all therapy was given intravenously, and fluid was kept at 2500 to 3000 cc. daily.

1. After drawing blood for chemical study in the morning, 1500 cc. 5% glucose in water, or 10% Travert solution with two to eight grams calcium gluconate (10%) was given in a 2- to 2½-hour period. Potassium acetate two to four grams was added if the K serum value was low; if the K is elevated, 10 units of regular insulin was added to the intravenous solution.

2. Three to four hours later, 120 to 240 mEq. of 1- or 1½-Molar sodium lactate with 15 grams aminophylin was given slowly for two hours. The 1-Molar concentration was used when edema and cardiac embarrassment was suspected. The amount of sodium lactate was determined by the clinical response and the fall in blood urea nitrogen. When given as 1/2-Molar, this was made up with equal parts of 5% glucose in water.

3. Three to four hours later, 1000-1500 glucose 5% in water or Travert solution 10% with two to six grams of calcium gluconate and 10 units of insulin was given. Potassium was added as needed.

4. When a patient roused from

1. Neubauer, R. A., & Dunsmore, L. J., *J. Urol.*, 72:1074-1081,1954.

coma and could take oral feedings, the intake was maintained at 2500 to 3000 cc. with water, tea and sugar, and ginger ale. The diet was gradually increased from salt-free toast and butter, mashed potatoes, and hard candy, to one gram salt and 20 grams protein.

5. As soon as practicable, oral electrolyte therapy was begun with: (a) 40 cc. 1-Molar sodium lactate, four to five times daily; (b) 20 to 40 cc. 10% calcium lactate in Amphojel four times daily; (c) when necessary, as judged by a falling serum value, five to 10 cc. 1-Molar potassium was given three to four times daily. If there was a rising potassium value, this was stopped. It is believed that sodium is better handled as the lactate in hypertonic form. On forced feeding, sodium lactate and calcium lactate therapy, all cases displayed a fall in urea and serum potassium levels.

Recently a method of intermittent peritoneal dialysis was described by Waugh which gives promise. This method consists of doing a routine abdominal paracentesis in the midline below the umbilicus and instilling the lavage fluid at body temperature through intravenous tubing attached to the trocar. In a brief period, 3 to 3.5 liters are instilled, the trocar is then removed, the skin wound is plugged with a rubber cap and a dressing is applied. After two to four hours the patient is placed in a sitting position, the dressing and the plug are removed, and the trocar is reinserted, the lavage fluid drained by gravity and the wound redressed. This method of dialysis may be repeated as often as needed, even two to three times in one day. The blood urea and potassium intoxication were reduced by this method, and, in one instance, autopsy showed no evidence of peritonitis after dialysis over a period of 29 days. This method appears to have the advantage of simplicity, availability and safety, and with further experience it should prove to be a valuable adjunct to the conservative treatment of severe uremia or potassium intoxication.

Antibiotics are administered. To be avoided are elective surgery, excessive transfusion and other procedures which may increase protein catabolism, and the production of retention products. The correction of body chemistry and the removal of retention products by some form of dialysis is essential. Of the different methods of dialysis, intestinal lavage by means of the Levin tube in the stomach for intake, and the Miller-Abbott tube in the jejunum for suction is favored. The Miller-Abbott tube should be started down as soon as the condition is recognized. The intermittent method of peritoneal dialysis gives promise of safety and effectiveness. The artificial kidney is reserved for use by the highly-trained team in a specialized center.

J. Michigan M. Soc., 56:190-193,1957.

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GENERAL EFFECTS:

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ANALGESICS AND STEROIDS: Requirements usually reduced or eliminated.

Dosage: Aralen is cumulative in action and requires four to twelve weeks of administration before therapeutic effects become apparent. The usual adult dose is 250 mg. daily. If side effects appear withdraw Aralen for several days until they subside. Reinstate treatment with 125 mg. daily and, if well tolerated, increase to 250 mg.

If medication is withdrawn, a relapse, if it occurs, will usually be manifest within 3 to 12 months. Resumption of therapy, as above, is generally again effective.

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Coronary Heart Disease: Surgical Aspects

Recent advances in extracorporeal heart-lung apparatuses and elective cardiac arrest may render surgery on the coronary vessels more practical

JOSEPH J. GARAMELLA, M.D., *Minneapolis, Minnesota*

INCIDENCE AND PROGNOSIS

According to the statistics of the United States Public Health Service, 373,597 persons died of arteriosclerotic heart disease in 1953. Of those surviving the initial attack, 50% succumb in five years, 62.5% in ten years.

HISTORICAL ASPECTS OF SURGICAL TREATMENT

In 1916 Jonnesco[1] on the basis of speculative reasoning of Francois Franck[2] performed bilateral stellate ganglionectomy to relieve angina. Since that time many other experimental and clinical methods have been tried. These include:

1. Nerve interruption.
2. Reduction of basal metabolism.
3. Development of collateral circulation by vascular grafts.
4. Development of collateral circulation from cardio-pericardial adhesions.
5. Development of existing anastomotic channels.
6. Local reaction of pathologic lesions.

EVALUATION AND INTERPRETATION OF RESULTS

One of the barriers to the clinical application of experimental methods has been the inconstancy of results reported by various investigators re-

1. Jonnesco, T., *Bull. Acad. Nat. Med.*, 84:93,1920.
2. Franck, F., Le sympathique Cevico-Thoracique, Paris: Mason et Cie, 1923.

lative to the principal test method, coronary artery ligation. The application of test procedures to normal animal hearts, rather than to hearts with varying degrees of chronic occlusion simulating human heart disease, has been offered as a criticism of experimental studies.

Our own experiments following acute and chronic occlusion[3] have demonstrated, in terms of coronary arteriography in the intact animal and peripheral coronary pressures distal to occluded points, that the development of collateral coronary circulation soon restores the pressures in the occluded coronary arteries to levels equal to those of unoccluded neighboring arteries. Thus, regarding pressure gradients between coronary and extracoronary vessels, the physiologic need produced by coronary artery occlusion is removed by the intercoronary collateral circulation. These data, however, may not apply during periods of cardiac strain.

MODIFIED CARDIOPNEUMOPEXY EMPLOYING PULMONARY SEGMENTAL RESECTION

Of the many experimental and clinical studies regarding augmentation of the coronary blood supply, the protective benefits of cardiopneumopexy as reported by Lezius[4-7] following the concept of Beck[8] were among the most important.

With the concept that the broad, vascular surface of one or more segments of the lung applied to the heart might provide greater protective benefits to the ischemic heart than would other methods of cardiopneumopexy, various combinations of pulmonary segmental resection and segmental cleavage have been explored experimentally with and without arterialization and venous obstruction of the grafted lobe. Excellent heart-lung union was a regular result of the operations, and anastomoses between the heart and the lung were consistently demonstrated by injection studies.

Directional blood flow studies were performed in 20 animals previously prepared by modified cardiopneumopexy with segmental resection and segmental cleavage. On the basis of dye studies of systemic blood samples following perfusion of the grafted lobe, it appears that blood from an extracoronary source, grafted lung in our studies, flows into the normal coronary circulation in small increments, and is significantly increased when acute coronary occlusion is induced. The data support the feasibility of augmenting the coronary circulation by an extracoronary blood supply. Details of the surgical technique of this modification of cardiopneumopexy with pulmonary segmental resection, injection studies and directional flow studies have been described previously.[9]

Subsequent mortality-infarct studies have shown that modified heart-lung graft provides significant protection against coronary artery ligation. The details of these experiments and the follow-up studies of surgically treated patients will be the subject of a later report.◀

3. Garamella, J. J., et al., *Surg., Gynec. & Obst.* (In press)
4. Lezius, A., *Arch. klin. Chir.*, 189:342,1937.
5. Lezius, A., *Arch. klin. Chir.*, 191:101,1938.
6. Lezius, A., *Arch. klin. Chir.*, 267:576,1951.
7. Lezius, A., Bier-Braun-Kummel. Chirurgische Operationslehre. Die Operationen Am Hals und Brustkorb, Leipzig, 1955, Johann Ambrosium Barth.
8. Beck, C. S., *Ann. Surg.*, 102:801,1935.
9. Garamella, J. J., et al., *Surgery*, 39:574,1956. *Minnesota Med.*, 40:289-293,1957.

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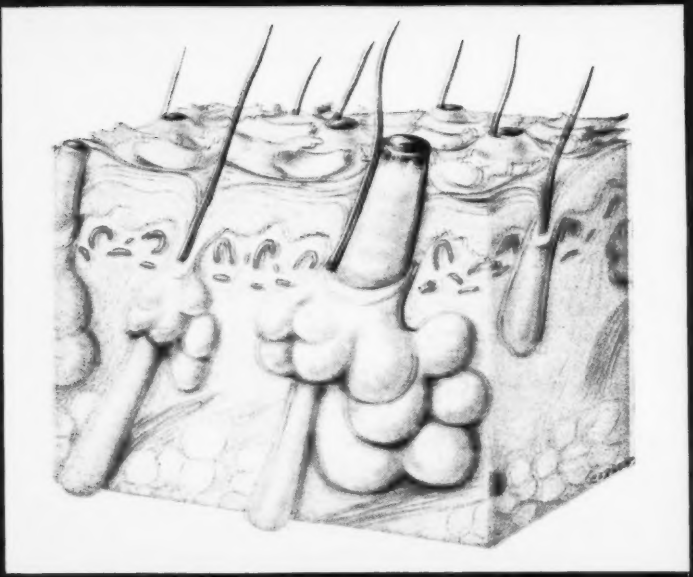

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The Transverse Incision

The transverse incision is stronger, more comfortable, and produces either a disappearing scar, or one which is cosmetically neater

VAN K. HILLMAN, M.D., *Seattle, Washington*

It is to the benefit of patient and doctor that scars resulting from surgical operation should not be unsightly. The principles are simple enough: gentle handling of tissues, and observance of the natural wrinkle lines. Ninety percent of sutures are tied too tightly—not only skin sutures but sutures in any situation. Sutures are meant to approximate, not strangulate. Put in more sutures with less tension on each. Using a sub-cuticular suture takes more time, but it is time well spent.

With one exception, all skin incisions of common operations are made in the same plane as the incision in the underlying fascia. This is due to habit, not necessity. A transverse skin incision can be retracted to accommodate even a vertical fascial incision, e.g., the collar incision for thyroidectomy.

The McBurney incision is a logical oddity. Of the five layers of the abdominal wall, four, including the skin, have their fibers arranged transversely and coincide exactly with the natural wrinkle lines in this area. The layer which does not coincide with these lines lies just beneath the skin and therefore the skin incision is oblique, crossing the wrinkle lines, and the scar will tend to widen rather than disappear. If the skin incision is made transversely, the external oblique can be split

and retracted, giving every bit as good exposure as the usual method. If it needs to be enlarged, it can be extended all the way across the abdomen if necessary, and still leave a scar which tends to disappear. Extension of the McBurney incision results in an odd looking, hockey-stick scar.

The usual inguinal incision is oblique in the direction of the external oblique aponeurosis. A transverse skin incision exactly in the skin lines, starting just above the external ring and extending just below the internal ring, is easily retracted to match the oblique plane of the inguinal canal and give the same exposure as the oblique incision—and it results in a disappearing scar.

GYNECOLOGICAL SURGERY

The usual pelvic procedures, including total hysterectomy, can be done through a curved transverse skin incision just above the pubis. The Pfannenstiel incision gives very limited exposure. It is necessary to sever or detach both rectus muscles and split the flank muscles in order to obtain wide exposure. This is time-consuming, compared with a midline vertical incision, both in opening and closing. However, patients who have had both vertical and transverse incisions are unanimous in their preference for the transverse, not only because of its cosmetic superiority, but because of much less postoperative discomfort, and the ease with which postoperative ambulation is carried out.

Most breast biopsies can be carried out through a circumareolar incision or one placed in the submammary fold. The scar of the first disappears, that of the second is either hidden or inconspicuous.

Subcostal incisions for gallbladder and stomach surgery are easily accomodated through transverse skin incisions, if the subcostal angle is wide. The midline skin is not as freely movable as the skin lying more laterally.

SUMMARY

A transverse is not as good an exploratory incision as a vertical, it also takes longer to open and close, however, it is stronger, more comfortable, and produces a much neater scar.

The constant use of the vertical incision is largely a matter of habit.

Northwest Med., 56:40-42,1957.

Drug Therapy in Convulsive Disorders

Certain types of seizures respond specifically to certain anticonvulsants, or a combination of these drugs; many of the new anticonvulsants have high toxicity

DAVID D. DALY, M.D., *Rochester, Minnesota*

The goal of therapy is to maintain a reserve of the drug sufficient to inhibit attacks while avoiding or minimizing undesirable side effects. Sufficient amounts of medicament will control seizures in any patient, but the price of this control may be torpor verging on stupor, incapacitating ataxia, vertigo or other distressing phenomena. While the anticonvulsant effects of drugs are additive, their individual toxicities are not. Thus, in some cases a combination of drugs is often best, though there is only one type of seizure.

After a selection has been made of the desired anticonvulsant, the patient should be started on a minimal dose, and the drug given in increasing amounts until the attacks are controlled or signs of toxicity appear. In the latter event, the dose is reduced below the toxic level and the concurrent use of a second anticonvulsant is begun. Patients who have been satisfactorily controlled may have periods of more frequent seizures and patient or relatives demand change to other drugs. Frequent changing often results in failure to reach an optimal dose with any. When drug change is deemed necessary, this should be done gradually so that a sufficient reserve of the older drug remains while the optimal level of the new drug is attained.

Treatment should always begin

with drugs known to be highly effective and with a low incidence of toxicity. Many of the newer anticonvulsants induce reactions of serious and even lethal character. Their use should be limited to patients whose seizures have been resistant to all less toxic drugs. If by the use of less toxic drugs we can reduce the frequency and severity of seizures so they cause the patient little trouble, it may be best to stop there. Toxic anticonvulsants should be administered only under close supervision.

The patient must understand the goal and cooperate in the details of the treatment program. The physician must be patient and persevering in the process of trial and error.

BARBITURATES

In all types of seizures save the petit mal myoclonus group, phenobarbital or diphenylhydantoin sodium should be tried before anything else. It may be prescribed in a single dose of 100 mg. at bedtime or in divided doses of 30 mg. three or four times daily. Some patients tolerate doses as high as 500 mg. daily. Even children tolerate, and may need, doses comparable to those of adults.

Somnolence and apathy constitute the principal toxic effects. These symptoms may appear with small doses; however, if its use is maintained they often will subside. If not, Ritalin or an amphetamine may counteract the drowsiness. Instances of dermatitis medicamentosa are rare.

Phenobarbital in moderate doses is the drug of choice for patients with infrequent seizures. Frequent or severe seizures often do better on phenobarbital plus diphenylhydantoin sodium. When given together, their total anticonvulsant action is additive; thus a high therapeutic level can be attained with little toxicity.

Mephobarbital (mebaral) is chemically similar to phenobarbital; in equal doses, it is less sedative. For the same anticonvulsant effect, the dosage of mephobarbital must be twice that of phenobarbital. Thus for most patients it probably is not superior to phenobarbital.

HYDANTOINS

Diphenylhydantoin sodium, like phenobarbital, is of value in generalized convulsions, focal seizures and automatisms; initial dose is 100 mg., two or three times daily for adults. The maximal effect is reached only after several days so that increments in dose should be made only at weekly intervals. The majority of adults can tolerate a daily dose of 500 to 600 mg. In patients requiring large amounts of the drug, the margin between toxicity and optimal effect is often very narrow. A reduction of 50 mg. in the total daily dose may bring control of attacks without toxicity. The daily dosage may be divided and given after breakfast and supper. Compounds of mixtures of several anticonvulsives have the advantages that several drugs are taken in a single dose, and of slightly lower cost, and the disadvantage of a fixed ratio of the combined drugs.

TOXIC REACTIONS

The incidence of toxic reactions with diphenylhydantoin is higher than with phenobarbital. The minor reactions include ataxia, drowsiness, blurred vision, and diplopia. Gingival hyperplasia is an annoying but not a severe complication. In most

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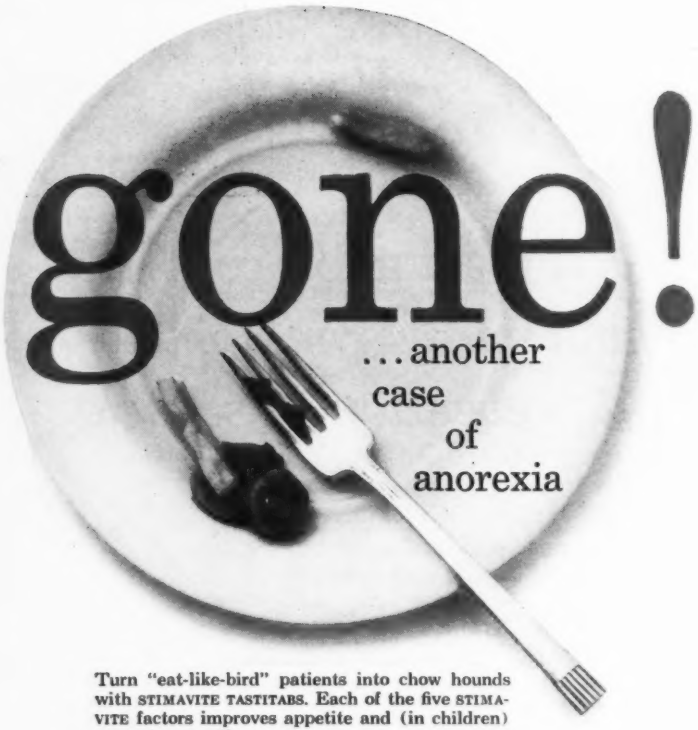

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instances it is asymptomatic and distressing primarily for cosmetic reasons. Careful oral hygiene will assist in reducing it. It occurs principally among children and young adults, usually after prolonged administration of the drug regardless of dosage. It is not an indication for cessation of the drug.

Hirsutism is an unpleasant but infrequent complication; if it is progressive, withdrawal of the drug may be necessary. Major manifestations of sensitivity include exfoliative dermatitis, which may occur at any time, and a morbilliform or scarlatiniform rash occurring shortly after the institution of treatment. The drug should be withdrawn and another anticonvulsant substituted. Any patient receiving an anticonvulsant drug should be told of the possible toxic reactions, and to report promptly any such symptoms.

Mesantoin, methyl-phenyl-ether-hydantoin, has the same dosage as diphenyl-hydantoin and the same indications. It is a drug which must be used with great caution. A number of patients receiving the drug develop agranulocytosis or even aplastic anemia. The risk is greatest during the first year of treatment. Damage to the liver, dermatitis, fever and lymphadenopathy also may occur.

OXAZOLIDINE DIONES

Trimethadione (Tridione) has proved potent in the control of the petit-mal triad. Paramethadione (Paradione) is a congener. These two drugs are discussed together. For children the dose is 300 to 900 mg. daily; for adults 900 to 1,200 mg. daily. Both are capable of producing blood dyscrasias, hepatic damage, nephrosis and dermatitis. Adults may have hemeralopia or photophobia so troublesome as to require discontinuance. Toxic reactions are slightly less frequent with paramethadione than with trimethadione; paramethadione is less effective than trimethadione. Toxic reactions may follow use of one of these drugs and not the other. If one is not tolerated, the other should be tried. For generalized convulsions barbiturates or hydantoins should be administered as well.

SUCCINIMIDES

N-methyl-*a*-phenylsuccinimide (Phensuximide, Milontin) seems assured of a permanent place in this therapy. Further evaluation is needed to define their precise role. In the meantime the absence of major toxic reactions permits their use on an empirical basis. Treatment is begun with a dose of 300 mg. daily; this is increased by an equal amount at weekly intervals. The optimal dose usually is 1,200 mg. daily, but some patients may need twice this amount.

PHENACEMIDE, PHENURONE

This drug has been advocated for the control of automatisms and focal temporal-lobe seizures. It has proved highly toxic, several deaths occurring from hepatic damage or bone-marrow depression.

PRIMIDONE

In the experience of 486 patients, this drug was effective only in the treatment of generalized convulsions; but for these it was effective in 20% of cases which had proved resistant to diphenylhydantoin and phenobarbital. The starting dose of primidone is 250 mg. daily, increased at weekly intervals by 250 mg. daily.

The usual effective dosage is 750 to 1,500 mg. daily. In many patients Primidone cannot be given alone since the optimal therapeutic dose approaches the level of toxicity. It is therefore effective oftener when used in conjunction with other anticonvulsant drugs.

MISCELLANEOUS COMPOUNDS

Acetazolamide, a sulfanilamide derivative, has been found of signicant value in reducing the frequency of *all types of seizures.* Tolerance may develop. To date, major toxic effects have not occurred.

Prenderol is of value in the treatment of petit mal; its action is extremely short so must be prolonged by the simultaneous administration of cream, olive oil or some such agent to retard absorption. It will probably be of little value in the long run.

Bromides are little used today in the treatment of convulsive disorders; nevertheless, in an occasional case they control when many other medications have failed. Their use in intractable cases perhaps merits more attention than it receives.

THE KETOGENIC DIET

This diet, valuable only in the treatment of children, sometimes produces dramatic results when other attempts at treatment have failed. Cessation of attack has been reported in 35% of children who remained on the diet from one to two years. Rigid adherence to the diet, with weighing of the food, is essential, as is daily testing of the urine for diacetic acid. These complexities, plus the unpalatable nature of the diet, make its continued administration difficult.

Proc. Staff Meet. Mayo Clin., 32:257-268,1957.

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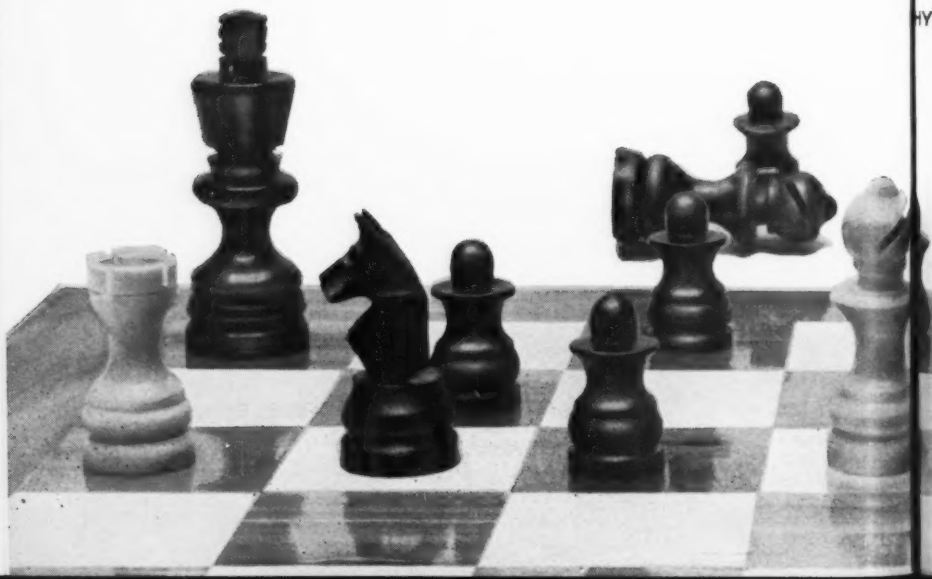

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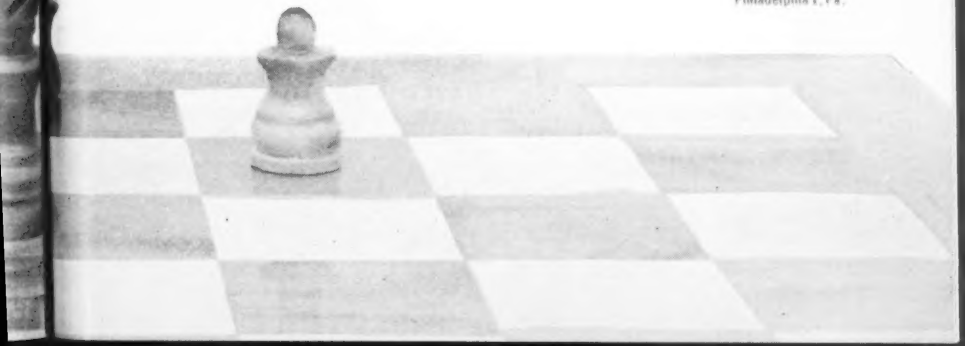

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CASE SUMMARY[2]

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REFERENCES: (1) Greenblatt, R. B.: *J. Clin. Endocrinol.* 16:869, 1956. (2) Hertz, R.; Waite, J. H., & Thomas, L. B.: *Proc. Soc. Exper. Biol. & Med.* 91:418, 1956.

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The Doctor Builds His Estate

Prepared for the readers of Clinical Medicine by the Research Department of the leading investment banking and brokerage firm of Bache & Co., 36 Wall Street, New York 5, New York

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These monthly articles point out one method by which the professional man may overcome the particular handicap imposed upon him by our tax structure, which taxes the bulk of his income at normal income tax rates, as opposed to the capital gains tax avenue open to many businessmen. One solution to this problem is the systematic investment of a portion of current income each year in securities. Such a program, which should include many different types of investments such as bonds, preferred stock, common shares and shares of mutual funds, will have as its objectives growth of principal together with reasonable income. We again emphasize that even the most complete series of articles of this type cannot take the place of consultation with a representative of a reputable brokerage firm.

One of the most widely held misconceptions about the stock market is that it is a monolithic entity, that when the "market" goes up or down, all stocks will do the same. Not really true even 30 years ago, this popular myth has become even further divorced from reality due to the increased specialization of our economy. Nowadays, even in the best of times, there are many companies—and often industries—that are not doing very well. Conversely, even when the bloom is off the boom, when times are not so good, there will be companies and industries that are prospering.

A recent example occurred during the third quarter of this year, a period when stock prices performed very badly. The Dow-Jones Indus-

trial Average, which surged to within a fraction of its all-time high of 521 in July, sagged sharply for the rest of the summer and finished September at 456. This drop of 21% caused 942 of the 1,085 stocks listed on the New York Stock Exchange to decline, while another 20 remained unchanged. Another 123 stocks were actually higher at the end of the quarter than at the beginning. While this is a small percentage of the total number of listings, it provided investors with a great many possibilities for profits, if they were adept enough to have chosen from these stocks.

The history of investing is replete with examples of companies and industries that did very well even in times when not only the general market was unfavorable but the economy as a whole was in the doldrums, or worse. The classic example, of course, is 1930, the year following the 1929 market break, when 6½% of all listed stocks surged to new all-time highs.

The gold mining stocks, regarded by many as a deflation hedge, had their own bull market between 1929 and 1933, sparked by an increase in the price of gold. Alaska-Juneau Gold, for example, climbed from 4 in 1929 to 20 in 1931 and to 33 in 1933. The golds as a group rose 500% from their 1929 lows to the 1933-34 highs.

We are recommending three stocks this month that we think will do well in 1958, no matter what the economy does. Even if the downturn in industrial activity, which many people expect, should materialize, there are special factors in each case to hold the company's earning power up. In the case of Irving Trust Co., the loans which will produce the bulk of next year's earnings, have already been made at high interest rates. Greyhound should do well, as its past record creates a belief in the company's ability to prosper in good times as well as bad. In the case of Bucyrus-Erie, the road-building program should bolster earnings.

IRVING TRUST COMPANY

Irving Trust is the 15th largest bank in the United States and the 8th largest in New York City on the basis of both deposits and capital funds. The bank's history dates back to the founding in 1851 of two banks —the Irving Bank of New York, named after Washington Irving, and the New York Exchange Bank, which, through a series of mergers, adopted the present name in 1929. Complete banking and trust services are offered through 10 offices.

The recent increase in the prime interest rate—that rate charged borrowers of the biggest banks with the best credit ratings—from 4% to 4½% strongly focuses attention on the basic source of commercial bank earnings—interest from loans. In 1956, for example, interest on loans accounted for almost 63% of Irving Trust's gross income, compared with 21% from interest and dividends on securities and 16% from other sources.

The bank's net operating earnings last year amounted to $12.8 million, or $2.56 a share, a 16% increase over the $2.20 reported in 1955 and more than double the level of a decade ago. The gain was primarily due to an increase of .43% in the average rate of interest earned on loans and mortgages to 4.04%, as interest rates rose nationally, and in part to an increase of $62 million in the average

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HOLLAND-RANTOS CO., INC • 145 HUDSON STREET, NEW YORK 13, N. Y.

IRVING TRUST CO.

Price	31¾
Dividend	$1.70
Yield	5.4%
Traded	Over-the-counter

Capitalization (9/30/57)

Common stock	5,000,000 sh.

amount of funds loaned. The increase in the prime interest rate to 4% in August of 1956 was not fully reflected in the 1956 earnings rate because of the time lag factor in the turning over of the loan portfolio, for when interest rates go up on new loans, this does not affect the rate being paid by borrowers on loans already in existence. What's more, the new prime interest rate of 4½% assures, with a good degree of certainty, steady increases in net income over the intermediate term future.

Thus, net operating earnings in the nine month period ending September 30, 1957, rose 12% to $2.05 a share from the $1.83 netted in the same period of last year. We estimate that full year 1957 earnings will be in the neighborhood of $2.80 per share, with 1958 net likely to range from $3 to $3.30.

In the past decade, Irving Trust, through alert and aggressive management, has compiled an impressive record—the best overall growth record of major New York City banks. Since 1947, for example, gross operating income has risen 162%, net operating earnings 103%, dividend payments 112%, book value 12%, total average assets 41%, and average rate earned on capital funds 79%. With New York City bank stocks as a group now selling at approximately 13 times 1956 net operating earnings, virtually the same multiple as that placed on Irving Trust shares, it seems clear that at present levels investors are not paying any premium for the superior growth record and management of the bank.

The present quarterly dividend of 40¢ has been in effect since February 1956, and a total of $1.70 a share was paid last year since an extra of 10¢ a share was declared in the final quarter. This represented a payout of 66% of 1956 net operating earnings, while the present dividend rate represents a 60% payout of estimated 1957 earnings, somewhat below the 10-year average payout of 66%. The 112% increase in dividend disbursements since 1947 is by far the best record of any major New York City bank, and more than compares favorably with the 86% increase recorded for all corporations over the same period. Irving's dividend payments have been increased in 7 of the past 10 years.

Capital funds, the equivalent of book value, as of September 30, 1957, totaled $131 million or $26 a share. Total capital funds were about 8.7% of deposits of about $1.6 billion, slightly below the average for New York City banks.

We believe that a number of factors make these shares attractive for investment purposes. For one thing, the earnings outlook for banks in general is favorable, due to higher interest rates and the likelihood of loan volume remaining relatively stable. In addition, uncertainties in the economic outlook are likely to make the investment climate quite receptive for bank shares in general.

Accordingly, we would recom-

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full antacid benefits

–no antacid penalties

After you prescribe ALUDROX, you can expect to enter such a report as this in your follow-up record: "Acid neutralization free of drawbacks." For ALUDROX avoids systemic or other handicaps. It avoids laxation (its content of milk of magnesia is right). It avoids constipation (its content of aluminum hydroxide is right). It avoids alkalosis. It avoids acid rebound. And it solves the problem of taste resistance.

In short, ALUDROX outmodes trouble-making antacids. Fresh-flavored, smooth-textured, it encourages patient co-operation. Its formula (one part milk of magnesia, four parts aluminum hydroxide) is the choice of many physicians for fast and prolonged acid neutralization, constipation-inhibiting action, and soothing protection. ALUDROX keeps antacid trouble out of your practice.

TABLETS SUSPENSION

ALUDROX®

Aluminum Hydroxide with Magnesium Hydroxide

to neutralize,
not penalize

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Philadelphia 1, Pa.

mend the stock for moderate capital gains since, in our opinion, a foreseeable value range of 39-43 is reasonable. The shares thus offer an excellent vehicle for investors interested in a secure satisfactory current yield—over 5%—with better-than-average prospects for continued growth.

BUCYRUS-ERIE COMPANY

Dating back to 1880, Bucyrus-Erie is one of the nation's dominant road building equipment concerns as the largest manufacturer of power cranes and excavators. In addition, Bucyrus-Erie is a leading producer of drilling machines and tools. During 1956, small and medium-size excavator cranes made up approximately 55% of sales. This equipment is used in construction activities such as road building and other construction projects. Approximately 30% of sales is accounted for by large excavators which find application in surface mining, quarrying and major construction projects. The balance of sales, approximately 15%, consists of drilling machines and tools. Over the past six years, this activity has shown the fastest growth for the company with sales up from $5 million to $13 million.

The position of Bucyrus-Erie has been strengthened by substantial research, development and engineering expenditures with 230 employees devoted to these activities. In recent years, the company has been engaged in a large scale expansion program in anticipation of the sharp increase in sales which is expected to occur when the gigantic Federal road building program gets into full swing. Earlier this year, a $4 million expansion and modernization program was completed at the company's Erie, Pennsylvania, facilities. In addition, a new $3.5 million plant in Canada for the production of small excavators and cranes has been completed and has started production.

Early in 1958, a $2 million expansion and modernization program at Evansville, Indiana will be completed. This is intended to increase the output of intermediate size excavators.

Of greatest importance, however, is a new $12 million plant for the production of drilling machines and tools which will be completed at Richmond, Indiana early in 1958. This will permit the company to increase substantially production of drilling machines, as well as freeing other facilities for the manufacture of other products. These expenditures total some $21.5 million, an amount approximating total capital expenditures of the preceding six years.

The earnings record of Bucyrus-Erie over the years has been superior. The company has been able to maintain one of the widest profit margins in the construction machinery field. During 1956, however, Bucyrus-Erie's profit margin narrowed, reflecting increased material costs and higher product development and expansion costs. As a result, net income for the company increased only to $6.8 million from $6.5 million a year earlier, even though sales increased some 20%. Due to a larger number of shares outstanding after the sale of 311,000 shares to stockholders in October, 1956, earnings on a per share basis actually declined to $3.64 from $4.19 in 1955.

This year, with the decline in margins continuing, earnings are ex-

BUCYRUS-ERIE CO.

Price	31
Indic. Dividend	$2.00
Yield	6.5%
1957 Price Range	52¾-30
Traded	N.Y.S.E.

Capitalization (6/30/57)

Long term debt	$10,000,000
Common stock	1,866,244 sh.

pected to be below the $3.64 figure. Sales for the year should be ahead of 1956, but the profit margin is currently depressed due to the large sales volume from newly developed machines which have not yet reached normal manufacturing efficiency, as well as expenses in placing its new facilities into operation. In addition, reduced dividends from the company's British affiliate had an adverse effect on Bucyrus-Erie's income. For the first half, these items were estimated to have trimmed earnings by about 50¢ per share. Moreover, earnings in the second half are not likely to be above the $1.77 reported for the first six months, due to the failure of the road building program to gain momentum as early as had been anticipated.

On a longer term basis, however, earnings and sales should rise substantially with a gain in net income expected to be ahead of the sales gain. As the new facilities—which are believed to have expanded sales capacity by at least 50% over the 1956 level—are worked in, manufacturing costs should be reduced. We believe that when the road building program reaches a high level some time in late 1959 or early 1960, the full facilities of Bucyrus-Erie should be utilized. Earnings, following a similar pattern, should shortly begin to rise until a much higher level—which should be maintained for a period of years—is achieved.

The financing and expansion program through the sale of stock was completed last October and as of June 30, 1957, the financial position of the company was strong, with current assets of $60 million compared with $16.8 million in current liabilities. During 1956, dividend payments, supplemented by a year-end extra, totaled $2.40 per share. This year, we would expect dividend payments of at least $2 per share.

At its present price, about 40% below the year's high, the shares of Bucyrus-Erie have considerable appeal for long term capital gain, reflecting the improvement anticipated under the impetus of the huge Federal road building program. The present depressed price reflects disappointment in the failure of the program to gain momentum to date. In addition to the likelihood of substantial capital gain prospects, moreover, the shares at present levels provide a generous yield.

GREYHOUND CORPORATION

Greyhound Corp. is well known to the traveling public as a nationwide bus carrier. The company, as of the end of 1956, operated a transportation system including almost 100,000 miles of routes, of which more than 44,000 were operated by the parent company itself and the rest by subsidiaries. The system was operating 5,879 buses at year-end 1956, of which 1,000 were dual-level Scenicruisers. An additional 500 Scenicruisers were on order at that

will her arms be filled this time?

Improve your abortion-prone patient's chance of coming to term by creating optimal conditions for the maintenance of pregnancy with Nugestoral. Nugestoral supplies five agents known to contribute to fetal salvage. Taken in a dose of three tablets per day, Nugestoral will help bring your abortion-prone patients to term.

new *for the abortion-prone patient*

NUGESTORAL®

Each tablet contains ethisterone (Progestoral®), 15 mg; hesperidin complex, 175 mg; ascorbic acid, 175 mg; sodium menadiol diphosphate (vitamin K analogue), 2.0 mg; dl, alpha-tocopherol acetate, 3.5 mg. In packages of 30 tablets.

ORGANON INC. *Orange, New Jersey*

NUGESTORAL®

for the abortion-prone patient helps create an optimal maternal environment with:

Ethisterone (Progestoral®)

Of renewed importance in the prevention of abortion, [1-4] luteal hormone prepares the uterus for implantation and maintenance of the conceptus. Its specific uterine relaxant action reduces the excessive uterine irritability so often found in habitual aborters. Ethisterone is the orally effective form of luteal hormone.

Hesperidin and Vitamin C

Capillary permeability and fragility may be involved in habitual abortion. [5-9] Since bioflavonoids, particularly hesperidin, acting conjointly with vitamin C, foster capillary integrity, these agents have been employed in habitual aborters to protect decidual vessels, with high fetal salvage as a result. [6-8]

Vitamin K

The value of vitamin K during pregnancy to prevent bleeding tendencies in both mother and infant is long-established. In addition, it appears that vitamin K may be of value in habitual aborters, [6,10,11] to prevent frequently encountered hemorrhagic diathesis,[7] particularly if membranes rupture prematurely or cervix obliterates and dilates early.[12]

Vitamin E

Alpha-tocopherol is considered by many obstetricians to be part of the standard therapeutic regimen for poor-risk obstetrical patients, as an extra precaution which has often proven of value. Alpha-tocopherol acetate, particularly, has been credited with improving fetal salvage in many nutritionally inadequate women. [13,14]

To Help Preserve Pregnancy In the Abortion-Prone Patient

NUGESTORAL®

ORGANON INC. *Orange, New Jersey*

1. Titus, P. Management of Obstetrical Difficulties. C. V. Mosby, 1955.
2. Wilson, R. B., Am. J. Obst. & Gynec., 69:614, 1955.
3. Falls, F., Am. J. Obst. & Gynec., 69:626, 1955.
4. Proceedings of the Internat. Cong. on Obst. & Gynec., 1954, 693, 763, 758.
5. Greenblatt, R. B., Obst. & Gynec., 2:530, 1953.
6. Javert, C. T. Ann. New York Acad. Sc., 61:700, 1955.
7. Greenblatt, R. B., Ann. New York Acad. Sc., 61:713, 1955.
8. Javert, C. T., Obst. & Gynec., 3:420, 1954.
9. Dill, L. V., M. Ann. Dist. Columbia, 23:667, 1954.
10. Javert, C. T., and H. J. Stander, Surg., Gynec. & Obst., 76:115, 1943.
11. Javert, C. T., and W. H. Finn, Texas State J. Med. 46:739, 1950.
12. Guttmacher, A. F., *in* Eastman, N. J., Williams Obstetrics, Appleton-Century-Crofts, 1956.
13. Sheffery, J. B., and L. V. Dill, M. Clin. North America, 31:696, 1947.
14. Hertig, A. T., and R. G. Livingstone, New England J. Med. 230:797, 1944.

time, and many have already been placed in service.

Greyhound shares ownership of some of its subsidiaries with railroads operating in various territories, including the Southern Pacific, the St. Louis Southwestern and the Richmond, Fredricksburg & Potomac. The company's buses operate throughout all 48 states and in southern Canada as well.

Under the guidance of a new chief executive, Greyhound has been moving aggressively toward improved operations and accentuation of hitherto dormant sources of income in the past two years. While earnings this year are expected to be only slightly higher than in 1956, the expanded earning power base should begin to make significant contributions in the not too distant future.

Greyhound's management has been taking active steps to eliminate unprofitable hauls. The company does not intend to reduce its mileage coverage but rather to expand its service into areas which are deemed to have profit potential. Thus, President Arthur S. Genet told stockholders that the company has been able to prove "time and again that where Greyhound operates over super-highways, limited-access or toll roads we can, in many cases, get our passengers from city to city even more quickly and conveniently than the airlines. This is particularly true between cities separated by 200 miles or less. Greyhound computes its schedules on the basis of arrival and departure from terminals located in midtown city areas, whereas airlines calculate their schedules from airport to airport, requiring considerable additional travel and waiting time (and expense) getting to and from the midtown areas."

The steady increases in passenger miles by months through 1956 and into 1957 are clearly indicative of the trend referred to by Mr. Genet. Bus miles operated totaled 506.9 million in 1956, compared to 493.7 million in 1955, and rose again to 245.2 million in the first half of 1957, from 236.3 million.

An important element in Greyhound's cost structure, of course, continues to be employee compensation, including such items as payroll, pensions and group insurance. In 1956, this group of costs accounted for 48.5% of each sales dollar. Another significant item is operating expenses for fuel, tires, insurance, etc., which amounted to 23.2% of sales last year. It is readily apparent that tighter control of these costs could provide a signficant improvement in earnings. A further potential for earnings increases is indicated by the fact that the load factor—the ratio of used seat miles to total available seat-miles—was just over 50% in 1956, reflecting the highly seasonal nature of the business which during the peak months taxes the system's capacity severely.

Greyhound has begun an aggressive advertising campaign and has established training programs in sales areas to complement its extensive training programs for operating personnel. The company plans an expansion program of adding about 500 buses a year, and is expanding its sources of supply so as not to be dependent upon one manufacturer. The cost of this expansion program, as well as other plans for the company's areas of activity, will be met largely from internally generated income such as depreciation

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to a normal

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NICOZOL relieves mental confusion and abnormal behavior patterns in your senile patients.

NICOZOL therapy will enable your senile patients to live fuller, more useful lives.

Mildy confused senile patients may be rehabilitated from public and private institutions and cared for in the home by sustained treatment with the NICOZOL formula.[1,2,3]

1. Levy, S., *J.A.M.A.*,153:1260,1953
2. Thompson L., Procter, R., *North Carolina M. J.*, 15:596,1954
3. Thompson, L., Procter, R., *Clin. Med.* 3:325,1956

NICOZOL is supplied in capsule and elixir forms. Each capsule or ½ teaspoonful contains:
Pentylenetetrazol.....100 mg.
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NICOZOL w/reserpine
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Write for Samples

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DRUG SPECIALTIES, INC. **WINSTON-SALEM 1, N. C.**

GREYHOUND CORP.

Price	15
Dividend	$1.00
Yield	6.7%
1957 Price Range	16⅞-14⅜
Traded	N.Y.S.E.

Capitalization (12/31/56)

Long term debt	$83,983,327
Minority interest	7,299,059
4¼% Cum. Pfd. ($100 Par)	72,262 sh.
5% Cum. Pfd. ($100 Par)	26,450 sh.
Common stock	10,602,717 sh.

although some outside financing—probably in the form of debt or bank loans—may be necessary.

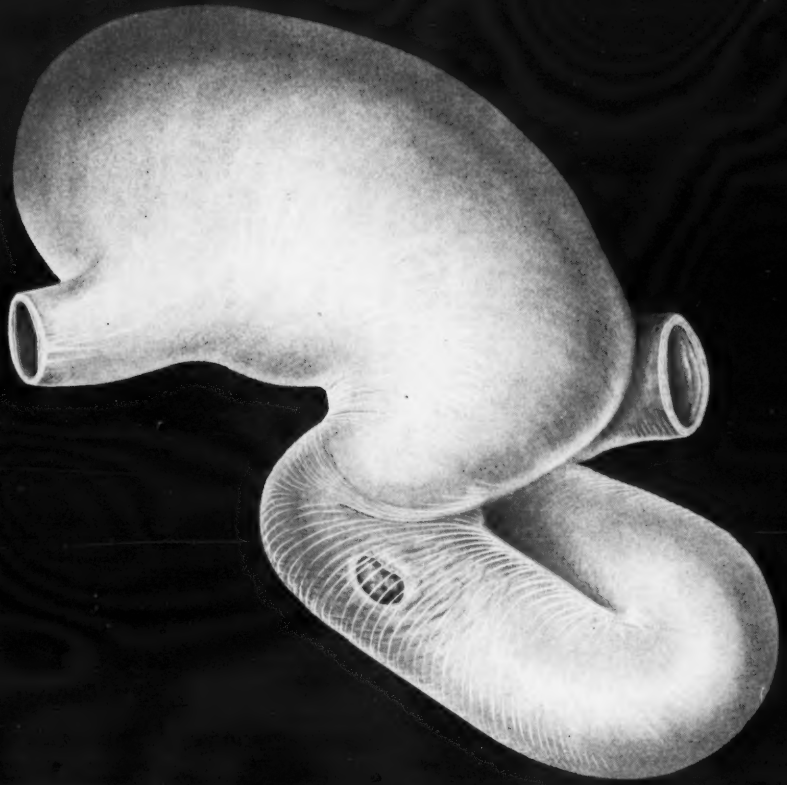
In addition to these activities, moreover, Greyhound has a number of other highly promising activities. The company is now operating in the field of package express, charter service, tour sales, the Greyhound Post House, nationwide moving van service and motor vehicle rentals.

The motor vehicle rental activity, for example, started in March, 1956, is still in the formative stages. While no significant contributions are being made to earnings as yet, the potential, based upon the progress to date, appears to be highly significant for Greyhound in coming years. In the nine months from June 30, 1956, to March 31, 1957, the number of leased cars and trucks rose from 28 to 5,206. By the end of July 1957, Greyhound Rent-A-Car, Inc., placed 69 stations in operations, and expects to have around 400 in operation at the turn of the year.

The Greyhound Post House Restaurants have continued to grow. Between 60% and 80% of their volume in the past came from Greyhound bus customers, but the company is succeeding in attracting more people. In 1956, Post House restaurant sales came to $13.6 million, up 9%.

The company's 1957 expansion program included the opening of new terminals in Philadelphia and Richmond, and the erection of new terminals in Detroit and Milwaukee. Surveys are in progress for a new terminal in Tacoma, Washington, and a new garage in New York, and plans have just been announced for the construction of a $3.5 million new terminal in New Orleans. Earnings have been remarkably stable in recent years, with net income per share ranging between $1.18 and $1.35 a share in each of the last eight years, and amounting to $1.27 a share in 1956. In the first six months of 1957, the traditionally low earnings period of the year, Greyhound netted 26¢ a share, as against 25¢ in the same period of 1956. For the year as a whole, earnings of slightly more than last year's $1.27 are expected.

A key to the present management's philosophy is its sincere belief that bus transportation is the only proper answer to mass travel. This belief will be strengthened by the present Federal program for highway construction. Considering the potential leverage provided by the cost structure and load factor, the company's successful completion of management's program could provide handsome returns. The new policies are already beginning to bear fruit. While much remains to be accomplished in the building of a broadened earnings base, the shares afford a generous yield and, in our opinion, have appeal for appreciation over the longer term.◀



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Pro-Banthīne® "proved almost invariably effective in the relief of ulcer pain,

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"Our findings were documented by an intensive and personal observation of these patients over a 2-year period in private practice, and in two large hospital clinics with close supervision and satisfactory follow-up studies."*

Among the many clinical indications for Pro-Banthīne (brand of propantheline bromide), peptic ulcer is primary. During treatment, Pro-Banthīne has been shown repeatedly to be a most valuable agent when used in conjunction with diet, antacids and essential psychotherapy.

Therapeutic utility and effectiveness of Pro-Banthīne in the treatment of peptic ulcer are repeatedly referred to in the medical literature.

Pro-Banthīne Dosage

The average adult oral dosage of Pro-Banthīne is one tablet (15 mg.) with meals and two tablets at bedtime.

G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

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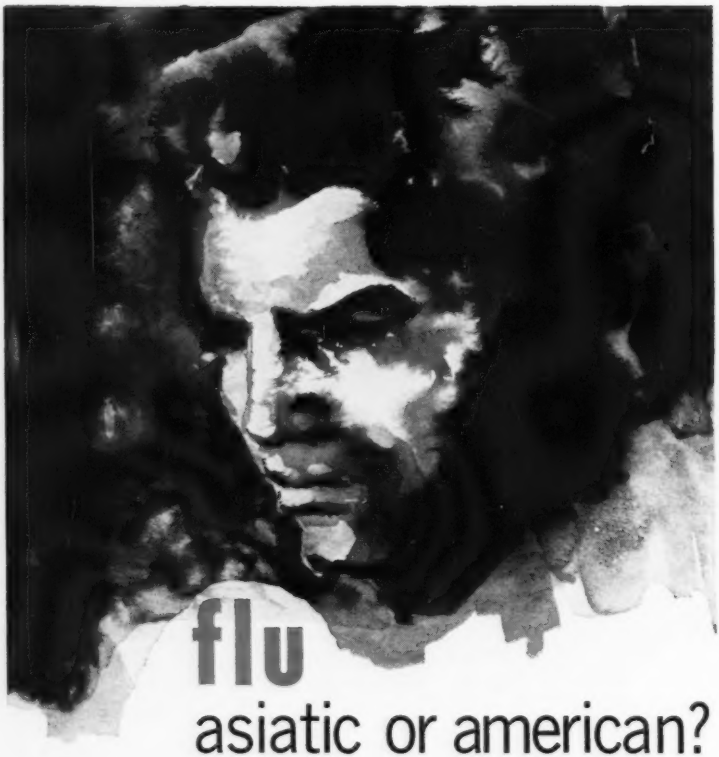
*Lichstein, J.; Morehouse, M. G., and Osmon, K. L.: Pro-Banthīne in the Treatment of Peptic Ulcer. A Clinical Evaluation with Gastric Secretory, Motility and Gastroscopic Studies. Report of 60 Cases, Am. J. M. Sc. *232*:156 (Aug.) 1956.

SEARLE



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Dimetane *(Robins)*

Synthetic antihistaminic agent whose high potency results in low dosage, high therapeutic index and low incidence of side effects. Effective in some cases previously refractory to other antiallergic therapy. *Indications:* Allergic states such as the hay fever syndrome, contact dermatitis, urticaria, etc. *Contraindications:* Sensitivity to antihistaminics. *Dosage:* Adults, one to two 4 mg. tablets three or four times daily. One *Extentab* every eight to twelve hours or twice daily. Two to four teaspoonfuls *Elixir Dimetane* three or four times daily. *Supplied: Dimetane Tablets,* 4.0 mg. scored tablets in bottles of 100 and 500. *Dimetane Extentabs,* 12.0 mg. tablets in bottles of 100 and 500. *Elixir Dimetane,* bottles of one pint.

Polymagma *(Wyeth)*

Antidiarrheal containing a new adsorptive clay five to eight times more effective than kaolin. A refreshing taste is designed to appeal to children and to patients experiencing nausea with diarrhea. It is bacterocidal against the common pathogens causing diarrhea, and free from toxicity and side effects. *Indications:* For the symptomatic treatment of diarrhea and for specific therapy in bacterial diarrheas due either to streptomycin- or polymyxin-sensitive organisms. *Dosage:* Administered orally in suspension form. Because of high potency, it is effective in smaller doses than usually required for antidiarrheal drugs. Recommended dosage is 20 cc. three or four times daily before meals, depending on response. *Supplied:* Bottles containing 8 fluid ounces in suspension form.

Darvon *(Lilly)*

A new non-narcotic analgesic that does not produce euphoria, tolerance, or physical dependence. Side effects, such as nausea or constipation, are minimal. It may be given concurrently with other drugs. It is equally as potent as codeine. *Darvon Compound* adds the antipyretic and anti-inflammatory benefits of *A.S.A. Compound* (acetylsalicylic acid and acetophenetidin). *Indications:* Any condition associated with pain, such as dysmenorrhea, headache, peripheral vascular disease, malignancy, etc. *Dosage:* 32 mg. of *Darvon* every four hours or 65 mg. every six hours as needed for pain. *Darvon Compound,* 1 or 2 pulvules every six hours. *Supplied:* Both dosage forms in bottles of 100.

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"...in clinical use the side-effects of nervousness, hyperexcitability, euphoria, and insomnia are much less than with the amphetamine compounds and rarely cause difficulty."[4]

References: (1) Gelvin, E. P., McGavack, T. H., and Konigsberg, S.: Am. J. Digest. Dis. 7:155, 1956. (2) Holt, J. O. S., Jr.: Dallas M. J. 42:497, 1956. (3) Natenshon, A. L.: Am. Pract. & Digest Treat. 7:1456, 1956. (4) Council on Pharmacy and Chemistry, New and Nonofficial Remedies: J.A.M.A. 163:356 (Feb. 2) 1957.

PRELUDIN® (brand of phenmetrazine hydrochloride). Scored, square, pink tablets of 25 mg. Under license from C. H. Boehringer Sohn, Ingelheim.

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Robaxin *(Robins)*

A new skeletal muscle relaxant with an unusual selective action on the central nervous system. Potent, long-acting and essentially nontoxic, virtually free from adverse side effects. It does not impair muscle strength or normal neuromuscular function, and it provides a significant reduction in pain incident to muscle spasm. *Indications:* Acute back pain associated with muscle spasm, secondary to trauma, or incident to nerve irritation. It is also indicated in the relief of muscle spasm secondary to discogenic disease and postoperative orthopedic procedures; in bursitis and torticollis. *Dosage:* Minimal initial dose is 4 gm. It may be increased to a maximal daily dose of 9 gm. depending on severity of muscle spasm. *Supplied:* Scored, compressed tablets in bottles of 50 and 100 tablets.

Furestrol Suppositories *(Eaton)*

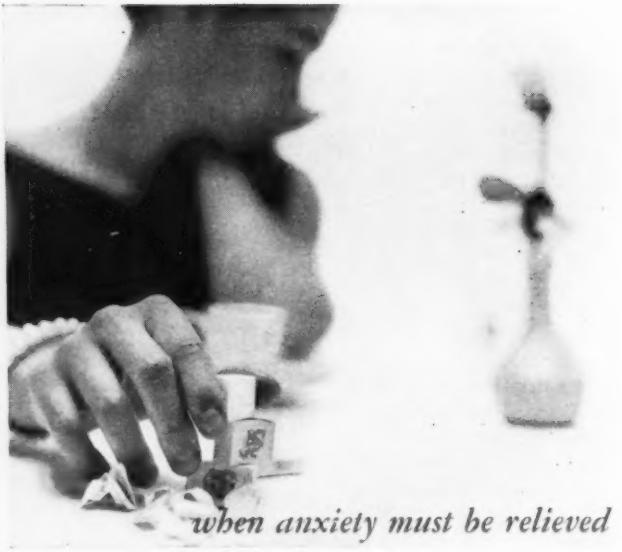
Urethral suppositories containing a combination of an estrogen, antibacterial and anesthetic. Diethylstilbestrol reverses the involutional changes. Insertion of the suppository, which melts at body temperature to form a lasting, water-miscible film, achieves gentle dilatation. Each suppository contains 0.2% of Furacin, 2% diperodon hydrochloride and 0.0077% (0.1 mg.) of diethylstilbestrol in a water-dispersible base. *Indications:* Dyspareunia, dysuria and other pelvic discomfort associated with senile urethritis in postmenopausal women. *Dosage:* One suppository morning and night, after voiding; continue for at least one week and until symptoms disappear. Patients with senile urethritis will require maintenance on one or two suppositories weekly. *Supplied:* Boxes of 12 suppositories hermetically sealed in orchid foil.

Cartrax *(Roerig)*

Combination tablet containing *Atarax* (hydroxyzine) and PETN (pentaerythritol tetranitrate) in the following ratios: 10 mg. *Atarax* combined with 10 mg. *PETN* (scored yellow tablet) and 10 mg. *Atarax* combined with 20 mg. *PETN* (scored pink tablet). *Indications:* Angina pectoris, coronary insufficiency and coronary artery disease, particularly when aggravated by tension or anxiety. *Contraindications:* Should be used with caution in glaucoma. *Dosage:* Begin therapy with one to two yellow tablets three to four times daily. This may be increased for maximal effect by changing to the pink tablets. *Supplied:* Both dosage forms in bottles of 100 tablets.

Estrosed *(Chicago Pharmacal)*

Each tablet contains 0.1 mg. reserpine and 0.01 mg. ethinyl estradiol, one of the most potent oral estrogens. The dual therapeutic action is designed to simultaneously readjust estrogen balance, relieve emotional instability, relax tension, and renew patient confidence. *Indications:* Estrogen deficiencies in menopause, hypo-ovarianism, menometrorrhagia and the post-menopausal period. *Dosage:* 1 or 2 tablets one to three times daily (depending on severity of symptoms) for one week. Dosage is lowered thereafter for maintenance to a maximum of 2 tablets per day. *Supplied:* Bottles of 100 and 1000 tablets.



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Diabetes and Tuberculosis

The particular susceptibility of the diabetic to tuberculosis has been noted for centuries. Before insulin, tuberculosis was found in 50% of diabetics necropsied. Since insulin, as patients began to survive diabetic coma, the increase in life span led to a percentage increase in mortality due to tuberculosis.

Two clinical features of tuberculosis exist more frequently in the diabetic and are probably also related to the greater severity of the disease. These are an increased incidence of pulmonary hemorrhage, and a greater likelihood of breakdown of the apparently stable, chronic case. At our Pre-natal Diabetes Clinic, three patients with radiographically stable pulmonary lesions were started on prophylactic isoniazid a few weeks before delivery. Two of these were followed for at least a year, and they showed no change in the character of their tuberculous lesions. The third was lost to follow-up shortly after delivery and stopped taking her medication. Four months later she was seen again in the clinic with symptomatic tuberculosis and an increase from the original minimal lesion to an extensive pneumonic process with cavitation and bronchogenic spread to other lobes.

The effect of tuberculosis on the diabetic is clear-cut. Most cases show exaggeration of the carbohydrate imbalance and a gradually increasing need for insulin—frequently to such a degree, or so rapidly, that the doctor becomes engrossed with the treatment of the diabetes, and the underlying tuberculous process is overlooked. The resulting ketosis and weight loss complicate the picture even further and apparently enrich the soil even more for the acid-fast organism.

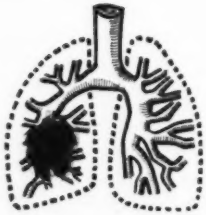
For prevention of tuberculosis in the diabetic, a program of adequate nutrition, along with insulin therapy, is of greatest importance. Weight loss, when necessary, should be at a reasonably slow rate. Fad diets are to be condemned.

All diabetics should have annual chest x-rays. Any sudden increase in insulin requirements or loss of weight demands chest x-rays. Maintain optimum nutrition with insulin. Hypoglycemic reactions must be avoided because of the danger of aspiration and spread of lung disease. Weight loss, even of obese patients, should be postponed until after the tuberculous process is well under control.

Other features of the treatment of the tuberculosis need not be any different from those employed in the non-diabetic with the same extent of disease process.

Joelson, R. H., et al., *J. Mt. Sinai Hosp.*, 23:621-627,1956.

For the complications of Asian flu



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provides Gantrisin plus penicillin in a single tablet....

for control of both gram-positive and gram-negative secondary invaders.

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Gantricillin 100 for mild infections

Gantricillin®; Gantrisin®-brand of sulfisoxazole

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DIVISION OF HOFFMANN-LA ROCHE INC
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Effectiveness of Salk Vaccine in Wisconsin

The shortage of vaccine supply was not without some advantages; the original effective dosage schedule being an arbitrary one, it now became possible to measure the effectiveness of a single injection against that of two or more.

The information presented by the state Board of Health is based on preliminary data and will be subject to subsequent modification.

In 87,763 children who had received at least one injection by July 31, 1955, the paralytic rate was 22.8 per 100,000 as compared with 101.7 in non-vaccinates; the non-paralytic rate was 50.1 in vaccinates, 83.4 in non-vaccinates. This is independent of the number of injections received by each child.

The rate among those who received two injections is about one-half that of those with single injections in respect to paralytic polio. Two injections were 84% effective as compared with the 71% effectiveness of a single injection, when results of both are compared with those in the non-vaccinated group.

Rates show a 40% decrease in non-paralytic poliomyelitis among vaccinates, 18% lower among those receiving single injections and 54% lower in those receiving two or more injections than in non-vaccinates.

Feig, M., *Wisconsin M. J.*, 55:462-463,1956.

Autohemotherapy: An Effective Treatment for Herpes Zoster

In 8 patients with a diagnosis of herpes zoster, 15 cc. of blood was withdrawn from an elbow vein of the patient and injected deep into a gluteal muscle. The patient was to return in 48 hours. If the pain had entirely subsided, there was no further treatment. If the patient still had pain, a 2nd injection was given in the opposite gluteal muscle. If the pain subsided, no further treatment was given. Thirty-four patients were cured following the 2nd injection; 12 still had pain and were given a 3rd injection. In 10 of these 12, the pain subsided and the vesicles were clearing rapidly 48 hours later, but 2 patients failed to respond to 3 injections. One was given 2 injections of 1,000 mcg. of vitamin B_{12} which cleared the pain promptly. The other was given vitamin B_{12} with no response.

In 54 patients with herpes zoster, autohemotherapy was used. The results were excellent in 52 cases. Autohemotherapy should be used routinely in treating herpes zoster.

Ansfield, F. J., et al., *Wisconsin M. J.*, 55:12,1319-1320,1956.

Tastiest way to dissolve sore throat symptoms

TROCHES

'HYDROZETS'

(HYDROCORTISONE-BACITRACIN-TYROTHRICIN-NEOMYCIN-BENZOCAINE TROCHES)

Adult or juvenile, your patients with sore throats will welcome a course of HYDROZETS. These newest Merck Sharp & Dohme troches offer anti-inflammatory, anti-infective and analgesic properties that promptly alleviate distressing mouth or throat irritation whether caused by infection, mechanical injury or allergic reaction. And HYDROZETS taste so good, it's hard to believe they're medicine.

Formula: Each HYDROZETS Troche contains—2.5 mg. 'HYDROCORTONE' to reduce pain, heat and swelling; 50 units Zinc Bacitracin, 1 mg. Tyrothricin and 5 mg. Neomycin Sulfate to combat gram-positive and gram-negative bacteria; and 5 mg. Benzocaine for rapid soothing analgesia.

Other indications: As adjunct therapy in aphthous ulcers, acute and chronic gingivitis and Vincent's infection.

Supplied: Vials of 12 troches.

MSD

MERCK SHARP & DOHME

DIVISION OF MERCK & CO., INC. PHILADELPHIA 1, PA.

The Search For a Nonaddicting Analgesic

The search for such a drug has been carried on since 1929 under a committee of the National Research Council. Attention is now directed toward the analgesic properties of the opiate-antagonist, nalorphine, and to mixtures of opiates and nalorphine.

Although nalorphine is a very weak analgesic, in general, it has recently been shown that it is as effective as morphine in relieving postoperative pain. Since physical dependence on nalorphine does not develop, one might say that a nonaddicting analgesic has been found, but the side-effects, particularly disturbing mental reactions, may preclude clinical use. It is also unknown whether tolerance to the analgesic effect develops under conditions of chronic use. It may also be possible that modifications in the nalorphine structure might reduce some of the side-effects, while retaining analgesic effects and lack of addictive potentialities.

Isbell, H., *J.A.M.A.*, 161:1254,1956.

Treatment of Polycythemia Vera With P^{32}

Polycythemia vera was evaluated in 28 patients as to incidence of major signs and symptoms. Response to treatment with radiophosphorus is given. Those receiving an initial dose of 8-9 millicuries obtained remissions of longer duration and required fewer subsequent phlebotomies than did those who received smaller doses. No alarming depression of hematopoietic tissue occurred in the patients studied.

Whitcomb, W. H., *J. Oklahoma M. A.*, 49:524-526, 1956.

Colloidal Wet Dressing

Certain basic concepts in skin therapy resolve most dermatoses without the use of expensive "wonder" drugs. Soothing wet dressings over the years have relieved and promoted healing of most acute and subacute skin conditions. These aqueous solutions are antipruritic, cleansing, antiphlogistic, analgesic—and safe.

After years of trial of many wet dressings, all tending towards excessive maceration and drying, in the past two years a product now available eliminates these drawbacks. This is a mixture of aluminum sulfate, calcium acetate and a colloidal oatmeal in individually-dosed packets.* The contents of this packet in water combine to form Burow's solution (aluminum acetate) in colloidal demulcent oatmeal suspension.

Patients will use this wet dressing longer and oftener, thus speeding recovery. The dilution is made as desired—for most patients the 1 to 40 solution is used.

During the past two years, 309 patients were treated with Bur-Veen soaks and Bur-Veen wet dressings, sensitivity was found in only three patients. Good to excellent results were had in 97% of the cases: Contact dermatitis—77, dysidrosis with secondary infection 28, pyoderma 23, seborrheic dermatitis 20, nummular eczema 15, dermatophytosis 14, folliculitis 13, intertrigo 12, varicose ulcers 11, atopic dermatitis 10, dermatitis venenata 10, tinea cruris with secondary infection 10.

*Bur-Veen®, Aveeno Corp., New York.

Fisher, S., *J. M. Soc. New Jersey*, 53:592-594,1956.

Arteriosclerosis and the Serum Cholesterol Level

Serums of 720 patients were analyzed for cholesterol. The patients were divided into two groups:

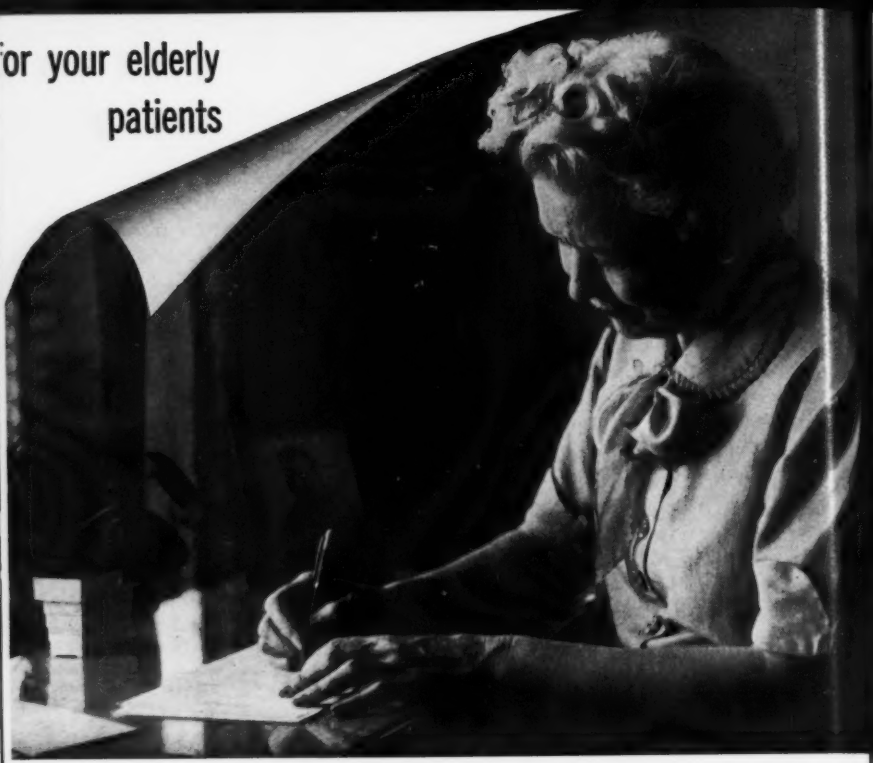
. 392 with arteriosclerosis who suffered from angina pectoris, myocardial infarction, hypertension and uncomplicated arteriosclerosis.

. . 328 with rheumatic or congenital heart disease or with diseases other than cardiac diseases.

Of the first group, 146 (37.2%) and of the second group, 44 (13.4%) had a marked increase of their serum cholesterol levels. The normal level in man is 132 to 300 mg. per 100 cc., but the level in the individual remains nearly constant. An increase of the total cholesterol in the blood may signify a passing of cholesterol from the tissues into the blood, whereas a higher serum cholesterol level may signify a migration of the cholesterol of the erythrocytes into the serum. These modifications are due to the influence of the hypophysis, the gonads, and the thyroid.

Hypercholesterolemia does not appear to be indispensable for the formation or development of atherosclerosis, since many patients with this disease have normal serum cholesterol levels. Disorders of the total lipid metabolism in patients with atherosclerosis might be reflected in the cholesterol metabolism. Hypercholesterolemia, therefore, may indicate atherosclerosis, but this is far from being the rule because many factors affect the cholesterol metabolism.

David, P. & Eddie, E., *Union med. du Canada*, 86: 155-159,1957.



safe and sure laxation

Agoral relieves constipation gently, without strain. A dose taken at bedtime almost always produces results the next morning. A patient taking Agoral can follow his or her normal daily routine because Agoral does not provoke the sudden urge induced by strong laxatives.

Excellent in geriatrics, Agoral solves one of the major, recurrent problems in this field, acting gently and positively. Agoral is also well suited to all other cases of acute and chronic constipation, where straining or purges are to be avoided: Postoperatively, during and after pregnancy, and in bedridden patients.

Agoral mixes readily and uniformly with the intestinal contents during its passage through the tract. It aids in the retention of fluid in the fecal column, affords lubrication and provides mild peristaltic stimulation. Agoral causes no sudden, uncomfortable griping, distention or stomach distress. Used for prompt relief, it is nonhabit-forming and may be prescribed for protracted periods.

Dosage: At bedtime, ½ to 1 tablespoonful. Contraindications: Symptoms of appendicitis; idiosyncrasy to phenolphthalein.

Supplied: Bottles of 6, 10 and 16 fluidounces; and as Agoral Plain (without phenolphthalein), bottles of 6 and 16 fluidounces.

Agoral® *the laxative to meet all needs*

mineral oil emulsion with phenolphthalein

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100 YEARS OF SERVICE TO THE MEDICAL PROFESSION

Acute Hemorrhage From Peptic Ulcer

Of 310 patients who had one or more episodes of acute bleeding due to peptic ulcer, 94.2% were followed for periods of three to fifteen years. Of 173 patients, whose index hemorrhages were due to duodenal ulcer and who had had no hemorrhages or operations before the index hemorrhage, the patients who survived the index hemorrhage and were continued under medical management had a 31% chance of having a second hemorrhage within five years of the first. Those who survived a second hemorrhage, and were continued under medical management, had a 64% chance of having a third hemorrhage within five years of the second one.

The age of the patient did not influence the chance of having a second hemorrhage from duodenal ulcer; but the mortality from the initial hemorrhage, and probably from subsequent hemorrhages, increased with age.

Shinn, A. B., et al., *New England J. Med.*, 255:973-978,1956.

Adenovirus Vaccine For Prevention of Acute Respiratory Illness

There are at least 14 distinct immunologic types of adenovirus. Only 3 of these, types 4, 7, and 3, are of current importance in epidemic acute respiratory illness of military recruits. The high incidence of acute respiratory illness of adenovirus etiology among military recruits made it imperative that a safe and effective vaccine against these agents be developed. A newly-developed bivalent type 4 and 7 formalin-killed adenovirus vaccine was used in 6 companies of newly-inducted recruits with no ontoward effects. A controlled trial showed the vaccine to be effective, beginning one week after initial injection. During the 2nd through the 5th week after vaccination, only one case of serologically positive adenovirus disease causing hospitalization occurred among 311 vaccinated recruits, in contrast to 61 cases among 313 controls from the same companies — a 98% reduction from the expected incidence. There is some indirect serologic evidence of a reduction in mild cases requiring only outpatient care.

No evidence was obtained regarding the duration of protection. The vaccine has great potential value in military populations, but its role in civilian populations remains to be determined.

Hilleman, M. R., et al., *J.A.M.A.*, 163:14-15,1957.

Fibrositis

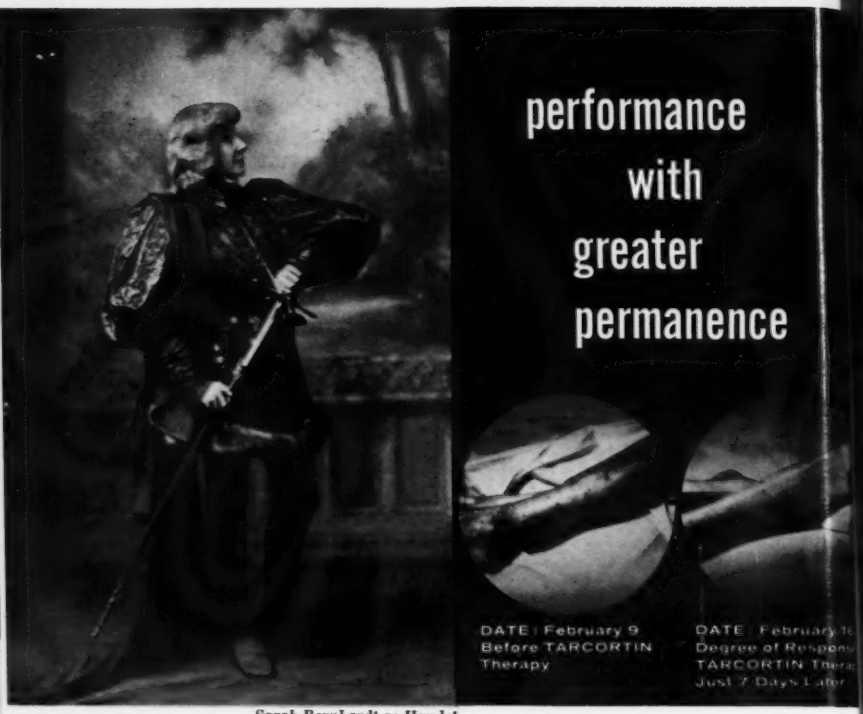
Fibrositis is a syndrome characterized by aching muscles, soreness and stiffness, local tenderness and trigger points in fascial planes, sheaths of muscles and nerves, ligaments, tendons, periosteal and subcutaneous tissue. There is no fever nor other manifestation of systemic disease. All laboratory tests are negative.

Fibrous nodules or thickening that may or may not be sensitive may be found, also localized tenderness or "trigger points." Headache may be caused by cervical fibrositis, chest pain by intercostal, or low back pain by lumbar fibrositis. Many cases of sciatic pain are due to intervertebral herniated discs, some to fibrositis.

Most important in the acute state is rest to reduce muscle pain from movements to a minimum. Spasticity is present in the acute stage; therefore, we may treat this condition and relieve the pain through the use of heat locally (hot fomentations, careful diathermy, infrared radiation), procaine infiltration, or counterirritation as by methylsalicylate ointment.

The anesthetics directly relieve the pain and relax the spastic muscles. Steroids are to be used very cautiously, and for short periods of time. Patients should not fatigue or expose themselves to sudden changes in temperature. Acute infections, mostly respiratory, should be treated at once and obvious local infections should be removed. Postural defects should be corrected.

Extra-Articular Rheumatic Conditions, Schering Corporation, 2:5-8,1957.



Sarah Bernhardt as Hamlet

SUBACUTE AND CHRONIC DERMATOSES
(Regardless of Previous Refractoriness)

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Hydrocortisone in Coal Tar Extract (TARBONIS®) Cream

Topical hydrocortisone alone or other newer steroids alone often p
duce dramatic but temporary results.[1-3] TARCORTIN, however, a
greater permanence to initial success.[2-3] The broader and more end
ing results with TARCORTIN derive from the potentiating effect of
components—tar and hydrocortisone.

PACKAGE: 7 gram and 1 ounce tubes.

FORMULA: 0.5% Hydrocortisone in 5.0% Special Coal Tar Extract (TARBONIS) in a Greaseless, Stainless, Hydrophilic, Vanishing Cream.

BIBLIOGRAPHY:

(1) Welsh, A. L., and Ede, M.: Hydrocortisone Ointments: Their Rational Use in Dermatology, Ohio State M. J. 50:837 (Se
1954. (2) Clyman, S. G.: The Compara
Effects of Hydrocortisone and Hydroc
sone-Coal Tar Extract (Tarcortin) Cre
in Atopic Dermatitis. Postgrad. Med. (N
1957. (3) Abrams, B. P., and Shaw,
Atopic Dermatitis Treated with Tar-Stu
(Tarcortin) Cream—A Case Report, C
Med. 3:839 (Sept.) 1956.

INDICATED WHERE INFECTION IS PRESENT OR ANTICIPATED AND FOR DRY, SCALY ECZEMAS

New/ NEO-TARCORTIN® OINTMENT

HYDROCORTISONE, NEOMYCIN AND SPECIAL COAL TAR EXTRACT (TARBONIS)

PACKAGE: 7 gram and 1 ounce tube

FORMULA: 0.5% Hydrocortisone, 0.35% Neomycin (as Sulfate) and 5.0% Special Coal Tar Extract (TARBONIS).

REED & CARNRICK Jersey City 6, New Jersey

Intestinal Obstruction in the Newborn

The mortality for the entire group of obstructions was 42%; in recent years it has been lowered from 60% to 30% in spite of more premature infants admitted. Important in lowering the mortality is routine use of decompression of the gastrointestinal tract, especially in cases requiring anastomosis. Many of the postoperative deaths are from leakage at the suture line. Fewer primary anastomoses should be done, and these under ideal circumstances. A catheter type of enterostomy proximal to the suture line is added as the best means of decompression; double enterostomy should be used more often.

Write Thomas V. Santulli, M.D., 180 Ft. Washington Ave., New York 32, requesting a reprint.
Santulli, T. V., *Bull. New York Acad. Med.*, 33: 175-193,1957.

Follow-Up of Children Discharged from a Psychiatric Ward

In this investigation, a basic interest was to provide the parents of patients an opportunity to criticize the procedures of the service and to offer suggestions for improvements. No attempt was made to provide a control group. A controlled design would give information on the spontaneous recovery rate and the efficacy of psychiatric procedures above and beyond the natural curative powers inherent in developing children and their environs.

The ward is closed with single and double rooms for a total of 14 boys and girls under the age of 16. There are two recreational rooms and lounges, an arts and crafts workshop, a small kitchen, a nurses' station, and service rooms. The permanent staff includes three physicians, two psychologists, one psychiatric social worker, a public school teacher, occupational therapists, a teaching assistant, nurses, aides, and orderlies. Resident physicians are one pediatrician and one psychiatrist.

As a rule, children are admitted for one month of study, then a treatment plan is formulated and implemented. Many are followed as outpatients after discharge, and many are referred to other agencies or to their local physician for continued treatment. A few have been given three to six months of inpatient treatment. The psychiatric unit serves as a last resort for the problem children of the state, with many referrals coming from physicians or clinics.

Of the 197 questionnaires mailed, 177 (89.9%) were returned. The total percent usable was 87.6%. The first mailing brought 50% returns, the second 40%, and another 10% followed the third request. The results indicate 17% were the same or

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NON-LAXATIVE CONSTIPATION CORRECTANT

Instant aqueous-mixing, self-emulsifying liquid petrolatum fortified with potent penetrating and dispersing activity softens hardest stools, provides prompt relief with—

PENETRATION: Dioctyl sodium sulfosuccinate promotes penetration of hydro-lipophilic emulsion deep into hard, dry rectal contents.

DISPERSION: Uniformly distributed emulsion of tiny, non-absorbable oil globules and water permeates entire fecal mass.

PLASTICITY: Unlike water, which is resorbed in the rectum, non-absorbable hydro-lipophilic MILKINOL is retained in the stool to assure normal evacuation.

UNIQUE EFFECTIVENESS OF MILKINOL

Let us prove to you, in your own practice, that MILKINOL solves the constipation problem for your patients—even those with chronic constipation or impactions of long standing.

Send for your samples and literature today!!

Prescribe with Confidence

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worse, 28% slightly improved, 40% markedly improved or well, and 15% unknown.

Suggestions from parents indicate their desire for more detailed information about their child and more specific help in planning management, also for a follow-up contact which would help them to make optimal use of the hospital experience.

Wolking, W. D., *Minnesota Med.*, 40:1-6,1957.

The Amyotonia Congenita Syndrome

The diagnosis of amyotonia congenita is now generally understood to include all cases in which generalized weakness and hypotonia of the skeletal musculature is present at birth, or is noted within the first three months, and in which there is no clear evidence of any cerebral, skeletal or metabolic disorder.

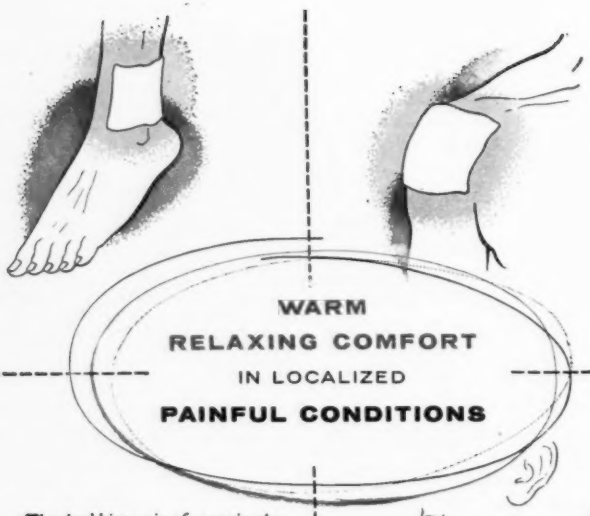
It is essential to decide at the earliest possible moment whether the child is suffering from spinal muscular atrophy, from symptomatic hypotonia, or from benign congenital hypotonia. If the diagnosis is spinal atrophy, then the prognosis is grave and treatment of no avail; if symptomatic hypotonia, the prognosis is that of the underlying condition; while if benign congenital hypotonia is diagnosed, a guardedly favorable prognosis may be given until it becomes apparent whether the child will recover completely or incompletely. In the meantime, physiotherapeutic supportive measures and appliances to prevent deformities may be needed.

Muscular weakness and atrophy are most severe in the cases of spinal muscular atrophy; although in the infant this atrophy may be concealed by adipose tissue, it can often be demonstrated by soft-tissue radiographs. The child who lies with the arms abducted and externally rotated, with hips abducted and knees flexed, scarcely moving except to breathe, is very characteristic. On being lifted, the child is limp—the "rag-doll" baby. Although weakness, hypotonia, and increased range of passive movements at the joints are a feature of children with benign congenital hypotonia, children in the latter group always show some spontaneous mobility of the limbs. In cases of symptomatic hypotonia, weakness is usually even less; nor do these cases show recession of the

lower ribs at the diaphragmatic attachment during inspiration—a feature which is sooner or later invariable in cases of spinal muscular atrophy and only occurs to a limited extent in the most severe cases of benign congenital hypotonia. Fasciculation of the tongue, too, and pooling of secretions in the pharynx, occur only in cases of the Werdnig-Hoffmann type. In similar cases with survival into the second year, muscular contractures and severe skeletal deformities, secondary to muscle weakness, invariably develop. Such phenomena are uncommon and slight in cases of symptomatic and benign hypotonia. Depression of tendon reflexes is most severe in cases of the anterior horn cell disease, and is less striking in examples of benign hypotonia, while in many of the symptomatic cases the reflexes are normal or even unusually brisk. Also, in cases of the latter type there may be signs which indicate the nature of the primary condition, of which generalized hypotonia is only a symptom.

Muscle biopsy in spinal muscular atrophy will reveal the characteristic atrophy in groups of muscle fibres, while in the other two groups of cases muscle specimens studied with conventional techniques will usually be normal, except when the hypotonia is symptomatic of some other muscular disease. Finally, the natural history of the illness will eventually make diagnosis certain, as cases of spinal atrophy will become progressively weaker, those of benign hypotonia will improve, and in those with symptomatic hypotonia, the nature of the underlying disease will surely become evident.

Walton, J. N., *Proc. Royal Soc. Med.*, 50:301-306, 1957.



WARM
RELAXING COMFORT
IN LOCALIZED
PAINFUL CONDITIONS

The throbbing pain of a sprain, the incapacitating ache of an arthritic joint, or the muscle tenseness associated with a sore throat—a single application of NUMOTIZINE will provide comfort for a period up to 12 hours.

Acting as a warm, moist dressing, NUMOTIZINE produces soothing hyperemia and analgesia in both traumatic and inflammatory congestive conditions.

NUMOTIZINE is simple to apply, requiring no heating of the area, no frequent change of dressings. As a topical application, it avoids the gastric irritation of oral analgesic medication. It is compatible with systemic medication.

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PRESCRIPTION CATAPLASM

Supplied: 4, 8, 15 and 30 oz. jars

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CHICAGO 10, ILLINOIS, U.S.A.

Buccal Trypsin in Trauma and Inflammation

Reversal of acute inflammation has been attributed to trypsin, given intravenously or intramuscularly. When proteolytic enzymes were reported to penetrate connective tissue, buccal or sublingual trypsin administration became a distinct possibility. Accordingly, a buccal tablet was designed to permit slow absorption.

This report is on 127 patients with recent trauma or acute inflammation, such as hematoma, cellulitis, boils, abscesses, thrombophlebitis, contact dermatitis, and upper respiratory infection. Seven patients had chronic bronchitis with minimal bronchiectasis and seven had chronic bronchitis with extensive bronchiectasis.

Buccal tablets of 5 mg. crystalline trypsin were given every four hours for periods of one day to 27 weeks. The tablet is dissolved against the cheek.

The group with trauma showed rapid reduction in localized collection of edema and blood; and patients with acute localized infections showed prompt reduction in redness, swelling, heat, limitation of motion, and pain. Similar results appeared in the thrombophlebitis group; the patients with upper respiratory infections showed a prompt reduction of coughing, easier expectoration, and thinner and decreased secretions.

Treatment had to be discontinued in two patients because of mouth soreness. Six patients, in whom trypsin therapy was terminated because of pain or local reactions, were successfully treated with buccal trypsin, often for long periods.

Trypsin in tablet form was given buccally to 127 patients with acute inflammation and 14 patients with chronic inflammation. The incidence of side effects following buccal trypsin is low. Reversal of inflammation following buccal trypsin is rapid and consistent.

Innerfield, I., *Antibiotic Med. & Clin. Therapy*, 3:245-249,1956.

Effects of Aldosterone in Addison's Disease

Within the past 3½ years, aldosterone has been isolated, structurally identified, and synthesized. This potent sodium-retaining steroid is present in adrenal and systemic vein blood and in the urine. Only small quantities have been available to date. Studies indicate that aldosterone is more potent than desoxycorticosterone acetate in causing sodium retention and potassium excretion, and that there are other significant differences.

Early work suggested that the administration of the steroid would not

urised®

Attacks the Cause
Alleviates Pain
Arrests Infection

Patients—in all age groups—respond readily to the 3 "A"s of URISED. It is effective in virtually all forms of urinary disturbances—even those complicated by serious systemic disease.[1]

ATTACKS THE CAUSE—In minutes, URISED attacks both primary causes of pain and dysfunction: (1) smooth muscle spasm; (2) incidence of infection.

ALLEVIATES PAIN—Prompt antispasmodic action relaxes painful smooth muscle along the urinary tract, brings quick relief to the distressed patient.

ARRESTS INFECTION—Rapid antibacterial action reduces irritation, even overcomes infections previously resistant to antibiotics and sulfonamides.

Prescribe URISED with confidence to relieve frequency, burning, urgency, dysuria, promote rapid restoration of normal urinary function in all urinary affections of all age groups.

1. Strauss, B., Clin. Med., Vol. IV, No. 3, 1957

CHICAGO PHARMACAL COMPANY
Chicago • San Francisco

result in edema and excess retention of sodium. Later reports indicated that, in doses of 1 mg. per day for six days, mild edema would result.

Aldosterone was given to three patients with Addison's disease and the effects of moderate and large doses on electrolyte and nitrogen balance, total body water, and exchangeable sodium and blood electrolytes were observed.

In general, the results of these studies are in keeping with the findings of others. Aldosterone alone will ameliorate the water and electrolyte abnormalities, postural hypotension, and syncope of Addisonian crisis, and maintain normal electrolyte and water balance in patients who have Addison's disease. Oral use appeared to be only slightly less effective than intramuscular.

Aldosterone is capable of correcting the electrolyte and water abnormalities associated with Addisonian crisis and of maintaining electrolyte balance in patients who have Addison's disease. The daily intramuscular administration of 400 or 800 micrograms of aldosterone for 7 to 14 days resulted in increased exchangeable sodium, increase of total body water, increase of extracellular fluid space, and development of mild edema. No hypertension, alkalosis, or change in pigmentation was observed during the administration of aldosterone, and there was no significant change in nitrogen balance. These studies indicate, as do previous observations by others, that large quantities of aldosterone are needed before one can produce and study the full picture of hyperaldosteronism in man.

Salassa, R. M., *Proc. Staff Meet., Mayo Clin.*, 32: 201-211,1957.

New Oral Electrolyte-Carbohydrate Mixture

Patients suffer from a variety of fluid imbalances. Most of them will respond to the combined use of parenteral and oral fluids, or to the use of oral fluids alone.

An electrolyte-carbohydrate mixture (Lytren*) for oral use is now available. The mixture was not given to any patient whose gastrointestinal tract was not intact, and whose kidneys were not functioning adequately (since the mixture contains significant amounts of the K ion.)

A total of 267 patients, including 2[illegible] with medical, 112 with surgical, 4[illegible] with obstetric and gynecologic, and 81 with pediatric disorders received the new mixture.

The mixture proved useful for the treatment of fluid-volume deficit, extracellular fluid total electrolyte concentration excess, potassium deficit, metabolic acidosis and metabolic alkalosis; also as a means of forestalling fluid imbalance in patients with decreased tolerance for more complete oral nutriments. It proved to be convenient for hospital and home use, was well tolerated, easy to prepare and easy to administer. The constant electrolyte content provides balanced amounts of water and electrolytes and sufficient carbohydrate to prevent severe caloric deficits.

The mixture is a valuable addition to the armamentarium of the physician in general practice.

*Lytren, Mead Johnson & Company, Evansville, Indiana.

Hendrickson, W. E., *J. Missouri M. A.*, 54:23-26, 1957.

sick of eating

...sick after eating

"Mealtime doldrums" (nausea, lack of appetite, gastrointestinal distress, dyspepsia, weakness and fatigue) are symptomatically consistent with biliary stasis. More than replacement therapy (bile salts) is needed. A copious flow of highly fluid bile—hydrocholeresis—promptly drains the biliary tree and clears away sluggish bilious matter, relieves irritation, and prevents infection of the bile ducts. Hydrocholeresis restores the physiologic supply of natural bile *from within* and achieves laxation without catharsis. Dehydrocholic acid is the most potent hydrocholeretic and the least toxic of the bile derivatives.

Spasmolysis is rapidly and effectively achieved by homatropine methylbromide which has been proved notably safe in the new, higher dosage of five milligrams.

Cholan V, a combination of dehydrocholic acid and homatropine methylbromide, affords prompt relief from symptoms of hepato-biliary insufficiency and spasm, and helps maintain adequate bile fluidity — especially indicated in dyspepsia, obesity, pregnancy, and alcoholism.

new Cholan V

Each tablet contains 250 mg. Cholan DH® (dehydrocholic acid Maltbie) and 5 mg. homatropine methylbromide. One or two tablets t.i.d., after meals. Bottles of 100, 500, and 1,000.

Hydrocholeresis is contraindicated in jaundice and in complete bile duct obstruction.

***Also available:* Cholan DH® (250 mg. dehydrocholic acid); Cholan HMB (250 mg. dehydrocholic acid, 2.5 mg. homatropine methylbromide, ⅛ gr. phenobarbital).**

Write for free sample supply to Professional Service Department.

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Principles of Urology

An Introductory Textbook to the Diseases of the Urogenital Tract, by Meredith F. Campbell, M.S., M.D., F.A.C.S., Emeritus Professor of Urology, New York University. W. B. Saunders Company, Philadelphia & London. 1957. $9.50

The announced purpose of this book is to instruct the student in the broad fundamentals of urology, and to serve as a practical guide for the doctor, who is not a urologist, in his dealing with urologic problems. Special attention is given to the necessary physical and laboratory examinations of the type that doctors in general might be expected to be willing to undertake, and also to operative procedures that would come under this head. The book promises to attain the objectives of its author in a very fine way.

Textbook of Pathology With Clinical Applications

by Stanley L. Robbins, M.D., Boston University School of Medicine, Harvard Medical School and Tufts University School of Medicine. Illustrated. W. B. Saunders Company, Philadelphia & London. 1957. $18.00

The author tells us that this textbook was written for students and clinicians with three major goals in mind. First, the matter is to be presented in a logical, concise, readable fashion; second, the major relevant features of a tissue or organ are to be briefly cited; third, emphasis is to be placed on relating pathology to clinical medicine. Certainly these were worthy objectives, and worthily have they been attained. Every doctor of medicine would do well to invest in this book and to refer to it daily.

1957 Medical Progress

Edited by Morris Fishbein, M.D. The Blakiston Division, McGraw-Hill Book Co., Inc., New York, Toronto, London. 1957. $6.00

Recent advances especially noteworthy are the use of tranquilizing drugs and heart surgery. High blood pressure has multiple causation, an important factor being eating too much, particularly of fats. Little is claimed for achievement in the war on cancer. Salk vaccination against poliomyelitis has lived up to expectation. Aspirin alone is more effective than the steroids alone in chronic rheumatoid conditions, and its use along with steroids reduces the amounts of steroids required. There are no personality differences between peptic ulcer patients and the general run of persons, so there is no evidence that worry is an important cause. Progress in surgery has been lead by anesthesia. Birth trauma is not a frequent cause of cerebral palsy.

This is a level-headed presentation of the medicine of today which should be in the hands of every practicing physician.

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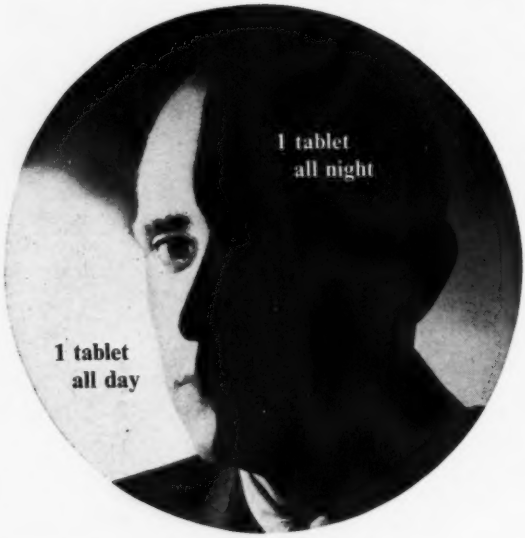

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[1]Fuller, H. L. and Kassel, L. E.: Antibiotic Medicine and Clinical Therapy, 3:322, October 1956.

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